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CANADIAN ENERGY CHRONOLOGY

1945-1985

ENERGY DEVELOPMENTS AND POLICY DECISIONS

Prepared for use in the Department of Energy,
Mines and Resources as a reference source in
energy policy research and information management.

1987

OTTAWA

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"The next best thing to knowing something is knowing where to find it"

Samuel Johnson (1709-1784)

CANADIAN ENERGY CHRONOLOGY

1945-1985

INTRODUCTION

This report consists of a record of energy developments and policy decisions over the period 1945 to 1985. It is presented in the form of a chronology of events, with each event being identified by a title in the left-hand margin and by the year and month in which it was initiated. Over 1300 energy developments and policy decisions are described in paragraph format. The Chronology accompanies a report entitled "The Canadian Energy Record 1945-1985", which provides an overview of the Canadian energy economy in terms of principal developments and trends in each of the decades of that period. That report also examines factors which appeared to be prominent in the determination of the course of events in the energy economy over the 40-year period.

Preparation of both reports followed from a detailed review and description of energy records of the Department of Energy, Mines and Resources (EMR) and the predecessor Department of Mines and Technical Surveys prior to those records being submitted to the National Archives of Canada, and from reference to a number of other government documents as well as books and journal articles. The overall purpose of both reports is to present an account of past events in the energy economy for general reference, and to assist in the process of identifying specific events for further research and thereby increase the usefulness of the historical record for energy policy planning in the future. Within the size limitations of the reports, the objective was to select events documented in the record which would be significantly representative of the developing energy situation. These events would then serve as markers for the energy policy researcher in initiating in-depth research on specific topics.

Access to topic descriptions in the Chronology is facilitated by reference to the topic index which follows. Rather than using page numbers, items are located by year and month, e.g. the National Oil Policy that was initiated in February 1961 has the identifying number 61FEB opposite the name of the event in the index together with follow-up references. Where there is more than one entry in a given month, as in the case for the International Energy Agency (IEA) in April 1978, the locator is 78APR(2) for the two entries on the IEA in that period. Each page in the Chronology shows the year in the top, right-hand corner and, for the user's convenience, also the page number for the pages of each year.

Reference to the chronological notes covering a period of years provides a record of evolving energy policy concepts and policy changes, in response to changing domestic and international circumstances, in such matters as: energy security of supply, environmental concerns, revenue sharing and related equity questions, oil and gas pricing and energy marketing objectives, energy conservation, and energy R&D. The chronological notes also provide a record of representative initiatives taken by principal energy agencies: Energy, Mines and Resources and the predecessor Mines and Technical Surveys, National Energy Board, Atomic Energy Control Board, Atomic Energy of Canada Limited, Energy Supplies Allocation Board and other federal agencies having energy policy responsibilities. Energy legislation is recorded in the notes and in Appendix A at the end of the report. The record of energy forecasting over time, which reveals many short- and long-term misjudgements by national and international authorities, points to the difficulties of energy policy planning and the importance of the historical record as a guide in that process.

The units used in this report are those that appeared in the original record - in most cases, Imperial units up to the late 1970s. A statistical appendix in the report "The Canadian Energy Record 1945-1985", noted above, provides a statistical overview, in Metric units, of energy supply and demand trends over the 40-year period covered in both reports.

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THE YEAR 1945**Mineral fuels
production minor
in 1945**

In January, mineral fuels production was still under wartime controls which by the end of the year were being lifted following termination of World War II in August. The coal industry had operated at a comparatively high level during the war, the value of output in 1944 and 1945 being \$70.4 million and \$67.6 million. The crude petroleum and natural gas industries had remained small although the first discovery had been made in 1858 in Ontario. The value of crude oil production in Canada in 1944 and 1945 was \$15.4 million and \$13.6 million. In those years, natural gas production value was \$11.4 million and \$12.5 million. Following the Leduc oil discovery in February 1947, those industries expanded rapidly and, by 1955, crude oil had an output value of \$305.6 million and natural gas, \$15.1 million. The natural gas industry began to expand rapidly in the late 1950s as major gas pipeline systems were completed.

**Wartime Oils
Limited oil
supply project**

On March 31, Wartime Oils Limited, a Crown company, completed its mission of wartime oil supply and the rights and assets were assigned to the Minister of Munitions and Supply and, in due course, to the Department of Mines and Technical Surveys and finally to the Department of Energy, Mines and Resources. The Company was incorporated on April 6, 1943 to advance capital to small independent oil companies so that they would have funds to drill on the west flank of the Turner Valley oil field, 30 miles southwest of Calgary. Oil was badly needed in Canada which was dependent on about 70% of its supply from increasingly uncertain foreign sources. There was a particular need for aviation fuel supplies for the British Commonwealth Air Training bases in Canada. During the wartime operation of the company, 22 wells were drilled in the Turner Valley field under the Wartime Oils program, with 21 finding oil, some of which continued to produce into the 1980s. The total amount advanced for the 21 successful wells was \$3.83 million. By the time the wartime project closed in March 1945, it had produced 830,000 barrels of oil with a value of \$1.4 million. Repayment of monies advanced plus interest at 3.5% and a small royalty continued to be repaid and, by the end of 1963, a total of \$4.13 million had been returned to the Crown. Seventeen of the 21 successful wells had repaid the advance and interest and had been returned to the original owners, while continuing to pay royalties to the federal government. The program proved to be highly successful and effective in a time of wartime shortages. The drilling sites were selected on the basis of advice from the Geological Survey of Canada and, during the war period, the project was operated by the Oil Controller, a member of the Wartime Industries Control Board established to regulate essential economic sectors such as timber, steel, oil, power and metals. The program proved to be far more effective in terms of wartime oil supply than the much more costly Canol project (see note for June).

Canol oil
project, N.W.T.

The Canol Project was initiated in 1942 as a wartime measure to supply oil to military bases in Alaska from the Norman Wells field in the Northwest Territories. The operation was terminated in June 1945. The Project was initiated as the result of an agreement between the governments of the United States and Canada, concluded in 1942, and between the U.S. government and Imperial Oil Limited. Under terms of the agreements, the Norman Wells oil field on the Mackenzie River, 90 miles south of the Arctic Circle, was developed by the drilling of 63 wells. The field had been first drilled in 1921 but had been only developed on a minor scale until 1942. The Project involved the production of about 3000 barrels of crude oil per day and the construction of a 598-mile pipeline, across the Cordilleran Region, to Whitehorse, Yukon, for the transportation of the oil to a refinery built at that site as part of the Project. The total cost was \$134 million. The main pipeline was completed in 1943 but dismantled when the Project was terminated in June 1945 although part of the pipeline system, which had been developed to distribute petroleum products from Whitehorse along the Alaska Highway, continued in operation (see also June 1953 note on the Haines-Fairbanks pipeline). Forty years later, pipeline access was provided for the more extensively developed Norman Wells oilfield. In March 1980, Interprovincial Pipeline submitted an application to the National Energy Board to construct an 866 km (500 mile) pipeline from Norman Wells to Zama, Alberta, to connect with an existing pipeline system. In 1982, the NEB approved certification of the pipeline, at a capacity of 4,770 cubic metres (30,000 barrels) a day, but the line was not completed until the mid-1980s in order to provide time to resolve socio-economic issues related to the interests and concerns of the native people.

Eldorado Mining
and Refining
Ltd. established
as a Crown
company to
operate Port
Radium mine

Eldorado Mining and Refining Limited was incorporated, as a Crown company, by Letters Patent, dated June 30, 1945. By Order-in-Council P.C. 535 of January 27, 1944, all issued capital stock of Eldorado, then a company incorporated in Ontario, had been appropriated and the company established as a Crown company for the purpose of securing for the Government of Canada a source of uranium. It was the only company permitted to prospect for uranium. Eldorado became a Crown company during World War II because of the military implications related to radium and uranium. The Eldorado mine on the eastern shore of Great Bear Lake in the N.W.T., opened in 1933, had been closed in July 1940 because of the disruption of the radium market caused by the war. The refinery at Port Hope, Ontario, continued to operate from stockpiled material. The Port Radium mine was reopened in 1942 upon a joint Canada-U.S.-U.K. agreement, and the mine and the Port Hope refinery were in full operation by early 1943. It was the only uranium ore mine in the western hemisphere and constituted the largest reserves available. The government had become the outright owner of all of the Company's assets in 1944 in order to ensure the maximum security control required under wartime circumstances. The refining process for the Port Hope refinery was developed by scientists of the National Research Council and the Mines Branch of the Department of Mines and Resources (now EMR) in the late 1930s and early 1940s. The Port Radium mine, discovered in 1930 and opened in 1933, had produced uranium, copper, silver, and cobalt in the period 1933-1940. When production was resumed in 1942, the

pitchblende concentrates were shipped to Port Hope to recover uranium, and radium was recovered as a by-product until 1953. With the development of nuclear energy, it became possible to produce artificial radioisotopes of various elements in nuclear reactors and the radioisotopes replaced radium in the several medical and research applications such as Cobalt 60. The Port Radium mine was closed in 1960.

Plans for
transition from
wartime to
peacetime atomic
research

In 1944 plans were completed for the construction of a nuclear reactor and two chemical separation plants at Chalk River, Ontario, as part of Canada's contribution to the wartime effort in atomic energy development. With the end of World War II in August 1945, the Chalk River facilities were only partially completed. Attention was then given to the transition of the nuclear research program from a war to a peacetime orientation. The commercial possibilities of nuclear power were becoming evident and the federal government was faced with the challenge of deciding how it should proceed with the development and use of its uranium resources and with the development and application of atomic energy for peaceful purposes. A considerable research base had been built up in Canada through the country's participation with the U.S. and U.K. in wartime atomic research.

Wartime research
in Canada leads
to CANDU in
the 1950s

On September 5, the first nuclear reactor outside of the United States "went critical" at a joint Canada-British laboratory which had been established in Montreal at the outbreak of war. Fundamental research had been conducted independent of work in the U.S. Canada had been associated with scientific development in nuclear physics ever since Lord Rutherford began his research on radioactivity at McGill University in 1899. It was not until 1939, with the discovery in Germany that the atom of a particular isotope of uranium could be split into two approximately equal parts, that the transformation of mass into energy through fission began to assume practical implications. In 1940, information on atomic energy, as well as on the war research projects, was exchanged by the U.S., U.K., and Canada. This led to the establishment of a laboratory at the University of Montreal under the direction of the National Research Council for the further investigation of the atomic energy problem, with scientists recruited from Canada, the U.K. and other allied countries. In 1943, it appeared that a new way to manufacture and separate fissionable material should be studied on a pilot plant scale and it was agreed that Canada should undertake this project. The design for the pilot plant was developed in the Montreal laboratories and the plant built at Chalk River, Ontario. The plant was approaching completion at the end of the war and, accordingly, Canada was in the fortunate position of having research facilities to carry forward the work in atomic energy which later led to the development of the CANDU power reactor system in the 1950s.

Coal supply
from Canadian
mines in the
mid-1940s

The coal production from Nova Scotia, augmented by a relatively small tonnage from New Brunswick, provided prior to 1940 not only for the requirements of the railways of the area, the steel industry, and the domestic market, but also for much of the fuel requirements of Quebec and, to a lesser degree, Ontario. During World War II, expansion of industry in the Maritimes led to an almost complete cessation of the movement of coal into Quebec and Ontario from the Maritimes. The record at the end of December 1945 showed that Nova Scotia coal had not been able to regain its former central Canada markets. Shipments of Alberta coal into Ontario ceased in 1942 but were resumed in October 1944 because of the fuel shortage in that province and they continued through to 1950. In 1945, Canada produced 16.5 million short tons of coal, with Nova Scotia accounting for 30% and Alberta for 48% of the country's total output. British Columbia and Saskatchewan accounted for most of the remainder, with a small amount coming from New Brunswick.

Natural gas
development
prospects
promising for
synthetic oil
products

The official government review of the natural gas industry reporting on developments in 1945 through to December recorded a number of successful drilling operations in Alberta, Saskatchewan and Ontario. In contrast with the lack of progress in oil resource development, there was considerable optimism that the reserves of natural gas that were being built up in Alberta would be a potential source of supply "for industries which may be established to process natural gas for the production of gasoline and other by-products ---- the time appears to be approaching when gasoline will be synthesized from natural gas at costs competitive with those for producing gasoline from crude oil". Plans for producing oil products from natural gas, and from coal, were soon dropped after the February 1947 Leduc oil discovery.

Oil industry
in decline

The official government review of the crude petroleum industry reporting on developments in 1945 through to December recorded the lowest production since 1939 and "inconclusive and disappointing results" in oil exploration. Alberta contributed nearly 94% of the small Canadian production of 8.5 million barrels and 87% of this total came from the Turner Valley field, near Calgary, which was in decline after 31 years of production. The search for new fields to supplement the declining yield from Turner Valley, and the old fields of Ontario which had first been developed in 1858, was not proving successful. The only encouraging development was the successful completion of the first commercial oil well in Saskatchewan in April, followed by five other wells later in the year, all in the Lloydminster heavy oil area on the Saskatchewan-Alberta border and adjacent to a producing area on the Alberta side. This 12° A.P.I. crude was being used as fuel by the Canadian National Railways. Following the Leduc oil discovery in 1947, oil resource development proceeded rapidly and, by 1955, the annual crude oil production of 129.4 million barrels was over 15 times the 1945 level.

THE YEAR 1946**Nuclear safeguards,
UN AEC report,
with Canada's
participation**

In January, the General Assembly of the United Nations created an Atomic Energy Commission (AEC) composed of representatives of the five countries represented in the Security Council (U.S., U.K., U.S.S.R., France and China), along with Canada and six other non-permanent members. Canada was included as a permanent member of the new international Commission as a result of its wartime participation in the development of atomic energy. The Commission was directed by the General Assembly to prepare specific proposals for the exchange of scientific information on peaceful ends; the control of atomic energy to ensure its use only for peaceful purposes; elimination of atomic weapons; and effective safeguards by way of inspection and other means against the hazards of violations and evasions. In September 1946, a subcommittee of the Atomic Energy Commission produced the world's first report on the international application of nuclear safeguards, which was eventually accepted as an unanimous report by the Commission. While Canada has maintained a policy of not manufacturing atomic bombs, the UN Atomic Energy Commission failed to accomplish its goal as the U.K. and the U.S.S.R., along with the U.S., soon took up the production of atomic weapons, followed by France in 1960, the Peoples' Republic of China in 1964, and India in 1974.

**Emergency Coal
Production Board
abolished after
the war**

The Emergency Coal Production Board, which had been constituted under the Coal Administrator by Order in Council P.C. 10674 of November 23, 1942, was abolished in April 1946, by Order in Council P.C. 1684 of April 30, 1946. It had been responsible for maintaining coal production, stimulating new production, closing inefficient mines, modernizing the coal industry, maintaining a labour supply for the mines, providing assistance to financially troubled mines, and removing all regulations which impeded maximum production in a time of war.

**Atomic Energy
Control Act
and Board**

An Act relating to the development and control of atomic energy, cited as the Atomic Energy Control Act, was passed by Parliament, received Royal Assent on August 31, and was proclaimed on October 12, 1946 (Geo. VI, c. 37). The Act established the Atomic Energy Control Board with a mandate as set out in section 8:

8. The Board may,
 - (a) undertake or cause to be undertaken researches and investigations with respect to atomic energy;
 - (b) with the approval of the Governor in Council, utilize, cause to be utilized and prepare for the utilization of atomic energy;

- (c) with the approval of the Governor in Council, acquire or cause to be acquired by purchase, lease, requisition or expropriation, prescribed substances and any mines, deposits or claims of prescribed substances and patent rights relating to atomic energy and any works or property for production or preparation for production of, or for research or investigation with respect to, atomic energy;
- (d) make rules for regulating its proceedings and the performance of its functions;
- (e) notwithstanding the Civil Service Act or any other statute or law appoint and employ such professional, scientific, technical and other officers and employees as the Board deems necessary for the purposes of this Act;
- (f) with the approval of the Committee, fix the tenure of appointment, the duties and, subject to the approval of the Governor in Council, the remuneration of officers and employees appointed or employed by the Board;
- (g) with the approval of the Committee, disseminate or provide for the dissemination of information relating to atomic energy to such extent and in such manner as the Board may deem to be in the public interest;
- (h) with the approval of the Governor in Council, licence or otherwise make available or sell or otherwise dispose of discoveries, inventions and improvements in processes, apparatus or machines, patent rights and letters patent of Canada or foreign countries acquired under this Act and collect royalties and fees thereon and payments therefor; and
- (i) without limiting the generality of any other provision of this Act, establish through the Honorary Advisory Council for Industrial and Scientific Research as defined in the Research Council Act, or otherwise, scholarships and grants in aid for research and investigations with respect to atomic energy, or for the education or training of persons to qualify them to engage in such research and investigations. 1946, c. 37, s. 8.

The preamble of the 1946 Statute, carried forward in the revision of 1952, notes that: "it is essential in the national interest to make provision for the control and supervision of the development, application and use of atomic energy, and to enable Canada to participate effectively in measures of international control of atomic energy". Section 9 of the Act describes regulations that the Board may make in carrying out its mandate. The three functions of the Board's responsibilities during its early operations related to regulations, mining, and research.

Atomic Energy
Control Board
- relations with
other agencies

When the Atomic Energy Control Board was established in October 1946, it made use of technical staffs in existing government agencies. As an agent for the Board, the National Research Council continued to investigate the peaceful uses of atomic energy and for this purpose established extensive facilities at Chalk River, Ontario. A separate Crown company, Atomic Energy of Canada Limited, was formed in 1952 to operate these facilities (see note for October 1952). The Mines Branch of the Department of Mines and Technical Survey (now Energy, Mines and Resources) continued research on the concentration of uranium ores and the extraction of uranium. The Geological Survey of Canada continued research on the mineralogy and geology of radioactive occurrences, made geological maps of favourable areas, and compiled confidential data on uranium and thorium resources for the Board.

Wartime controls
on coal
production
abolished

In 1946, the wartime controls on coal production were abolished (see October 1947 note on the Dominion Fuel Board, Coal Administrator and Coal Controller). The Dominion Fuel Board was reconstituted under the direction of the Minister of Reconstruction and Supply in December 1946. In 1947, the Fuel Board was reorganized as the Dominion Coal Board which continued in operation until 1970.

Chalk River
nuclear research
project
established
(NRX and ZEEP)
- reports to
to AECB until
1954

Effective December 1, 1946, the Atomic Energy Control Board (AECB), under provisions of the Atomic Energy Control Act, assumed responsibility for the control and administration of the research facilities at Chalk River. A decision had been taken in April 1944 to establish facilities at Chalk River and construction was underway in August 1945 when the war ended. Work was proceeding on a large heavy water-cooled research reactor, National Research Experimental reactor (NRX), which went into operation in July 1947, and a smaller experimental reactor, Zero Energy Experimental Pile (ZEEP), and two small-scale separation plants. The complex was to have been operated by Defence Industries Limited but the responsibility was taken over by the National Research Council (NRC) in February 1947. The Atomic Energy Control Board continued administrative control of the Chalk River facilities until 1954 but exerted very little control and direction. Chalk River was removed from operational control of NRC in 1952 when Atomic Energy of Canada Limited (AECL) was formed as a Crown company. In 1954, with the passing of amendments to the Atomic Energy Control Act, AECL began reporting directly to the Minister responsible for the AECB, Eldorado Mining and Refining and AECL. This provided for the separation of control, through AECB, from the operational responsibilities for atomic energy, through AECL (see notes for October 1952 and June 1954).

Royal Commission
on Coal 1946
(Carroll
Commission)

The Report of the Royal Commission on Coal, 1946 was submitted to the federal government in December following an inquiry concerned with a situation in which coal, as a fuel was dominant and the competitive supplying of Canadian requirements was the primary issue. The Commission, often referred to as the Carroll Commission after its chairman, was established by Order in Council P.C. 7756 of October 12, 1944 to inquire into all aspects of the supply and use of coal in Canada. Its 663-page report included a major study of coal reserves and chapters on the history, production, processing, transportation, and marketing and use of coal and its by-products, and on government support of the industry dating from the last century. The 1946 Report recommended a continuance of government assistance to coal production. Almost continuously since 1879, there had been tariffs against imported coal which assisted Nova Scotia coal to develop a market in the St. Lawrence Valley, and western coal to develop and maintain its market as far east as Winnipeg. Further support, which was initiated in 1928, took the form of transportation subventions, designed to equalize laid-down costs of Canadian coal with U.S. coal and thereby encourage the marketing of domestic coal in central Canada. During World War II, the Emergency Coal Production Board provided substantial amounts of assistance to Canadian mines as production subsidies. The 1946 Report recommended a resumption of the pre-war transportation subventions and maintenance of a 75 cents per ton import duty as the means of extending assistance in the post-War II period. The subventions were to be determined in terms of the relationship to the cost per ton of the imported coal that would otherwise be used in Ontario. The Commission recommended that the Dominion Fuel Board, comprised of members of the Civil Service be replaced by a Statutory Board with a full-time chairman to keep Canada's energy requirements under continuous review and to advise upon and administer transportation subventions. The Dominion Coal Board was established for these purposes in 1947 to replace the Dominion Fuel Board which had operated since 1922 (see Dominion Fuel Board note - October 1947).

The oil situation
immediately
prior to the
Leduc discovery

Analyses of the petroleum and energy situation in Canada completed in December showed that, in 1946, petroleum provided 16% of Canada's industrial energy, as against 51% by coal, 30% by hydroelectric power, and 3% by natural gas. In that year, Canada depended upon outside sources to supply close to 90% of its crude oil requirements. The U.S. was the source of 60% of the country's crude oil imports while 33% came from Venezuela and the remainder from Colombia and Trinidad. Even Alberta had to import crude oil, bringing in almost one half million barrels from Montana. The search for oil and gas had been actively continued but with very little success in finding new oil sources. In the nine years, 1938 to 1946 inclusive, about \$140 million was spent in the search for oil in Alberta, the principal drilling and exploratory work being done by Imperial Oil Limited, with no success. The fortunes of the industry changed with the Leduc oil discovery in February 1947.

THE YEAR 1947**Leduc oil
discovery leads
to rapid
development**

On February 13, Imperial Leduc No. 1 oil well came into production at a site 20 miles southwest of Edmonton. Prior to this discovery, Imperial Oil Limited had drilled 133 consecutive dry holes in western Canada in the search for oil. Until the Leduc field was discovered, Canada had only two oil fields of any size - Turner Valley near Calgary and Norman Wells in the Northwest Territories - with the former in rapid decline and the latter, too remote to supply any markets outside of the sparsely populated northern territories. Other discoveries quickly followed Leduc, and ten years later in 1956 Canada was producing 468,000 barrels of oil per day compared with less than 20,000 b/d at the time of the Leduc discovery. The impact of this resource development is indicated by the following growth trends:

| | <u>1946</u> | <u>1956</u> |
|--|-------------|-------------|
| Land being explored (million acres) | 20 | 191 |
| Exploration & development expenditures | \$12 M | \$ 638 M |
| Oil wells drilling during year | 64 | 2,368 |
| Wells producing at end of year | 393 | 9,575 |
| Reserves (millions of barrels) | 72 | 3,125 |
| Production (thousand barrels/day) | 20 | 468 |
| Refinery Capacity (thousand b/d) | 200 | 703 |
| Oil pipeline mileage | 435 | 6,050 |

**Wartime
restrictions on
uranium to be
removed**

In a statement in the House of Commons on March 25, C.D. Howe announced as government policy that radioactive material would be controlled after it had been mined and that the Atomic Energy Control Regulations would provide this control. Orders in Council in 1943 had reserved title to radioactive minerals on Crown lands in the N.W.T. and the Yukon. Until the Atomic Energy Control Regulations were passed in April 1947, mining operations were exclusively in the hands of the government. In March 1948, wartime restrictions on private ownership of radioactive mineral deposits were rescinded (see note for March 16, 1948).

**Atomic Energy
Control
Regulations,
including export
controls**

Atomic Energy Control Regulations, under the Atomic Energy Control Act, as authorized by Section 9 of the Act, were issued effective April 1, 1947. The powers conferred on the Atomic Energy Control Board (AECB) by the Act and set out in the Regulations were extensive. The Act and Regulations were designed in the immediate post-war period of concern in the western world about security in relation to atomic energy. As a result, the legislation generally provided the Board with much greater powers than those of most other regulatory agencies. Most of the regulatory powers came directly under the control of the Board, with the approval of the federal government, with the exception of Orders concerned with expropriation and requisition which required prior approval by the Governor-in-Council. There were no provisions for parliamentary hearings in the Board's regulation-making and

licensing functions in the 1947 Regulations, nor any specific provisions relating to health and safety. The 1947 Regulations proved acceptable until the mid-1950s when substantial revisions were needed to the Act and Regulations. However, during the period of the 1950s through to the early 1960s the AECB continued to issue export permits routinely as export sales were made through Eldorado Mining and Refining Limited. With the major policy announcement of June 3, 1965, export permits could only be approved if the AECB and the Department of External Affairs had completed negotiations, on behalf of the Government of Canada, with the importing country on matters concerned with peaceful uses of nuclear materials. In 1969, the AECB was given further responsibilities with respect to the export policy statement of June 19 in that year.

Eldorado Mining
and Refining
subject to
Atomic Energy
Control
Regulations

Under the Atomic Energy Control Act, and the Atomic Energy Control Regulations as approved in April 1947, the Atomic Energy Control Board (AECB) was given powers to "... acquire or cause to be acquired by purchase, lease, requisition or appropriation, prescribed substances and any mines, deposits or claims of prescribed substances...". These powers, and those spelled out in detail in the Regulations gave authority to the AECB to regulate uranium mining which, at the time the Act was passed, pertained to the only uranium mining company, Eldorado Mining and Refining Limited and its mine at Port Radium, N.W.T. However, the administration and operation of mining remained with Eldorado as a Crown company, reporting directly to the Minister also responsible for the Atomic Energy Control Act and AECB. The control of the company remained as it was during the war period and it continued to report to the Minister although the AECB could influence the activities of Eldorado through provisions of the Act and Regulations which pertain to all aspects of uranium resource development, production and supply.

Dominion Fuel
Board, Coal
Administrator,
Coal Controller

The Dominion Fuel Board, which had been established by Order in Council P.C. 2381 of November 25, 1922, was reorganized as the Dominion Coal Board effective in October 1947. The primary task of the Dominion Fuel Board had been to recommend ways of reducing central Canada's dependence on American anthracite coal and to suggest methods of achieving national self-sufficiency in fuel. The Fuel Board was composed exclusively of civil servants. Among other duties, it administered assistance to the coal industry in the form of transportation subventions. This aid was designed to equalize laid-down costs of Canadian coal with U.S. coal and thereby promote the marketing of domestic coal in central Canada. In the 1930s about 1.75 million tons of Nova Scotia coal and 650,000 tons of western coal were assisted annually at a cost in each case of \$1.00 per ton, or an average annual cost to the federal treasury of about \$2.4 million. However, only about 10% of the western coal that moved under subvention reached the market in central Canada. Following the establishment of the Dominion Coal Board in 1947, that Board continued the administration of the

transportation subventions. During World War II, the Emergency Coal Production Board disbursed substantial funds to coal mines as production subsidies. (see April 1946 note on that Board). During the war period, the powers duties and functions of the Dominion Fuel Board were transferred to the office of the Coal Administrator under the Department of Labour in June 1941. The Coal Administrator had been appointed under the Wartime Prices and Trade Board in October 1939 in order to encourage the export of British coal to Canada, to maintain production of Canadian solid fuels and to supervise the purchase, distribution and allocation of coal, coke and other domestic and imported fuels. Later, when fuel supplies began to slump and to affect the war effort, the office of the Coal Controller was established, effective March 1943, within the Department of Munitions and Supply, and in April 1943 the powers duties and functions of the Coal Administrator and the Dominion Fuel Board were transferred to the office of the Coal Controller for matters related to coal and coke. Matters pertaining to wood fuel control came under the direction of the Wood Fuel Controller in May 1943.

Dominion Coal Board

The Dominion Coal Board was established, on the recommendation of the 1946 Royal Commission on Coal, in 1947 to succeed the Dominion Fuel Board (11 Geo, VI, c 57). The new Board had seven members and its first chairman was appointed in October 1947 (P.C. 3620, October 21, 1947). The Board was given authority to review the policies of the federal government in developing and marketing Canadian coal and to advise the government on new policies. Its duties were defined as follows: to maintain adequate supplies of coal for national requirements; to aid in building a sound and healthy coal mining industry; to find steady and adequate markets for Canadian coal; to provide reasonably full employment at fair wages for miners; and to develop new equipment and methods capable of lowering production and transportation costs. Much of its time and attention was directed to the administration of transportation subsidies, and other forms of assistance, designed to equate the delivered costs of Canadian coal, particularly Nova Scotia coal, with U.S. coal in central Canada. That subvention program had been initiated by the Dominion Fuel Board in 1928, was suspended in World War II when other support measures were provided, and was resumed after the War on the recommendation of the Royal Commission on Coal, 1946. The Dominion Coal Board accordingly continued the pre-war mandate of the Dominion Fuel Board of supporting the market for Canadian coal by means of financial assistance to make coal competitive with U.S. coal and other fuels in Canada. This program continued until 1970 (see note for March 1970).

Mineral map of Canada - Map 900A

The first edition of Map 900A - Principal Mineral Areas of Canada related to the year ending December 1947. The map, on a generalized geological and physiographic base, shows locations of mines, oil and gas fields, pipelines, and mineral processing plants. Mineral statistics for the year are shown in tabulations on the map. Commencing in 1952, it has been issued on an annual basis (see note for March 1952).

The role of
Eldorado Mining
and Refining Ltd
through to the
mid-1960s

With the government decision in December to remove restrictions on uranium prospecting by private individuals and companies, and the government's intention to make Eldorado Mining and Refining Limited the sole purchaser of uranium, the Company entered the second phase of its operations. Eldorado had been established as a Crown company in 1944 for the purpose of securing for the Government of Canada a source of uranium. Circumstances pertaining to the establishment of the Company were unique in that mining and recovery of uranium were initiated under wartime conditions in which the critical nature of uranium as a wartime material called for special security measures in all phases of its development and production. With the lifting of uranium prospecting restrictions and the assignment of Eldorado's new role in uranium purchasing, the Company commenced a second phase of activity which extended through to 1959. Because there had been no uranium production by 1953 under the purchasing schedule announced in March 1948, the Company was then authorized to consider special price contracts to meet particular situations of contractual arrangements with the U.S. and U.K. governments (see note for December 1953). Uranium development proceeded rapidly in the mid-1950s and in 1959 Eldorado entered a third phase of activity when it became the instrument through which existing contracts with the U.S. Atomic Energy Commission and the U.S. Atomic Energy Commission were stretched out to enable the uranium industry to weather the difficult period between termination of military-oriented contracts, initiated in the mid-1950s, and the expected increase in demand in the 1970s when many new nuclear power projects were scheduled. In addition to its mining and refining operations, Eldorado also became in 1963 the agent of the Crown in the federal government's stockpiling program, receiving and inspecting all uranium shipments and providing warehousing at Port Hope, Ontario. By the mid-1960s, Eldorado's role as a government procurement agent, assigned to it at the end of 1947, had become redundant as contracts were being completed directly between producers and purchasers in a marketing economy in contrast to the 1950s when military requirements for uranium dominated.

U.S. oil reserves
commence decline
as Canadian oil
development
proceeds

World oil reserve assessments made effective December 31 by U.S. authorities showed that in 1947 the United States had 31.6% of the world's proved oil reserves and was accounting for 64% of world oil production. By 1985, the U.S. share in total proved reserves had declined to 5% and that country was only accounting for 18% of world oil output. Those trends, and the fact that the U.S. consumed 36% of the world's oil demand in 1966 which had only declined to 26% in 1985, account for the ongoing interest of the U.S. in Canadian oil production potential following the Leduc oil discovery of 1947.

THE YEAR 1948

Uranium
prospecting
restrictions
removed -
Eldorado to be
the government
purchasing agent

In a statement in the House of Commons on March 16, C.D. Howe announced details of a new policy whereby prospecting for uranium by private individuals and companies would be encouraged by establishing a guaranteed minimum price for acceptable uranium ores. Orders-in-Council of 1943, which had reserved title to radioactive minerals on Crown lands in the N.W.T. and the Yukon, had been revoked in late 1947. The Atomic Energy Control Regulations of April 1947 had given the federal government effective control of all phases of uranium mining, thereby enabling the Regulations to be widened in scope to permit private prospecting. The new policy also set out the basis for government purchases of uranium through Eldorado Mining and Refining Limited, or other designated agency. It specified among other criteria that the purchase price would be based upon the uranium content of the ores and would be at the minimum rate of \$2.75 per pound of contained U_3O_8 , with all operations subject to the provisions of the Atomic Energy Control Regulations. This minimum price was guaranteed for a period of five years. The Canadian government took its decision late in 1947 on freeing up of prospecting restrictions following the establishment of the Atomic Energy Control Board in 1946 and Regulations in 1947, and following a decision by the United Nations Atomic Energy Commission in the latter part of 1947 that it would not be necessary to have any international control agency to take over ownership of uranium in the ground. By 1956, as a result of the removal of restrictions on private prospecting, more than 10,000 radioactive occurrences had been discovered in Canada. All radioactive discoveries consisting of uranium or thorium to the extent of 0.05% or more were to be reported to the Atomic Energy Control Board. An exploration permit from the Board was required before the start of advanced exploration of a discovery, and a mining permit before the start of mining.

Uranium export
arrangement with
USAEC; Eldorado
role

In March, an arrangement was made between the Canadian and United States governments whereby all Canadian uranium available for export to the U.S. would be delivered to the U.S. Atomic Energy Commission (USAEC). Late in 1947, Eldorado Mining and Refining Limited had been designated by the Government of Canada as the sole purchaser of uranium produced in Canada. The arrangement made with the U.S. in 1948 provided that Canada would reserve for its own use such quantities as might be required for its own program.

AECB to regulate
heavy water but
jurisdiction
remains unclear
until 1974

In July the Atomic Energy Control Board (AECB) authorized Cominco Ltd. to produce deuterium or heavy water at its Trail, B.C., plant and supply it to government departments in Canada or the U.S., as designated by the National Research Council or the U.S. Atomic Energy Commission. The main concern was to maintain security of supply, with very little attention being given to health and safety aspects relative to production. After Canada

started heavy water production on a major scale in the late 1960s, questions remained as to AECSB's jurisdiction over heavy water production plants. The 1974 amendments to the Atomic Energy Control Regulations settled the issue by defining a plant for the production of deuterium as a "nuclear facility" and therefore coming under the purview of the AECSB. This clarified the 1947 Regulations which had left some uncertainty concerning the regulation of heavy water production as a chemical plant operation with no related atomic energy significance until after the heavy water had been produced.

Redwater oil
field discovery
accelerates
resource
development

In September the Redwater oil field, 30 miles northeast of Edmonton, was discovered, increasing the impetus to exploration given by the Leduc discovery in February 1947. A number of other discoveries, in addition to these two major fields, brought about unprecedented oil and gas resource development. Large areas of Alberta were taken up either by exploration permit or production lease. A total of 250 producing oil wells were completed during 1948, and initial plans were made for construction of an oil pipeline to Regina (see note for October 1950 on the Interprovincial Pipe Line).

Natural gas
reserves
build-up in
western Canada
leads to major
pipeline
proposals; gas
needed in
Ontario

In November, an assessment of the natural gas reserves of the Prairie Provinces was published by the federal Department of Mines and Resources. This estimate of the developed natural gas reserves of the region totalled 4.3 trillion cubic feet, exclusive of all isolated wells which had not been fully assessed. In view of the rapid build-up in gas reserves since the mid-1940s, there was increasing interest in the possibility of new market outlets by the building of long-distance transmission lines. Applications were made during the year to the federal government for charters of incorporation of several pipeline companies. Among these were three large gas pipeline proposals: one proposed a gas pipeline to Winnipeg and south to the U.S. border (Western Pipe Lines); a second planned a line from Alberta through the Crowsnest Pass to Kingsgate in B.C. and to Portland and Seattle, with branch lines to Trail and Vancouver, B.C. (Alberta Natural Gas Company); and a third was directed towards a line from the Peace River area of Alberta, through B.C. to Vancouver and south to the U.S. (later to become the Westcoast Transmission Company line). These projects all had one element in common: export to the U.S. market in addition to serving the domestic market. While these plans were underway, Ontario experienced an acute shortage of gas in the winter of 1947-48 because of the production decline in its small fields in the southwest part of the Province. For a time some industrial plants using natural gas were closed because of the shortage.

Dominion Coal
Board

In December, responsibility for the Dominion Coal Board was transferred from the Minister of Reconstruction and Supply to the Minister of Trade and Commerce (P.C. 5700, December 8, 1948). In 1951 responsibility for the

Board was transferred to the Minister of Mines and Technical Surveys (P.C. 1482, March 22, 1951), and in 1966 to the new Minister of Energy, Mines and Resources (P.C. 333, February 21, 1966). The Board was abolished in 1970.

Coal demand
peaks in 1948
and declines to
1961 low

The statistical record available in December showed that consumption of coal in Canada in 1948 had amounted to 43 million metric tons, the largest annual consumption in Canada's history. From that peak consumption declined to a low of 20 million tons in 1961. Consumption in the transportation sector declined from almost 12 million tons in 1948 to less than one million tons in 1961 as a result of dieselization of the railroads. The residential and commercial market declined from 12 million to 4.7 million tons in the same period due to increasing competition from oil initially and, later, from natural gas. The demand for coal in the industrial sector, for purposes other than thermal power generation, declined from 18 million to 12.5 million tons. The increase in the use of coal in electricity generating plants from the 2 million ton level in the 1950s to 10 million tons in 1968 more than offset the continuing decline in the space heating market, and accounted for the upturn from the 1961 low in domestic coal consumption to 25.5 million metric tons in 1970.

THE YEAR 1949**Alberta Mines
and Minerals
Act, 1949**

The basic provisions affecting Crown lands in Alberta were incorporated in the Mines and Minerals Act of 1949 which came into force on March 29 of that year and constituted a consolidation of various statutes and regulations pertaining to the administration of all mineral resources of the Province including oil and gas. Although subsequently revised a number of times, this legislation, and the various Regulations passed under it, set forth the conditions under which the right to explore for, and develop, all Crown minerals in Alberta may be acquired. The Act authorizes the Lieutenant Governor in Council to make Regulations governing the reservation of petroleum and natural gas rights which are the property of the Crown for geological and geophysical examination and for subsequent exploratory drilling and development. This legislation on the disposition of Crown oil and gas rights also provides the authority for the setting of royalty rates on oil and gas production. Much of the oil and gas legislation in other provinces was modelled after the Alberta Mines and Minerals Act.

**Dinning Royal
Commission
report on Alta.
oil and gas -
priority given
to Alberta and
other Canadian
markets over
exports**

In March, the Dinning Royal Commission appointed by the Alberta government in 1948, reported to the Alberta cabinet on its findings concerning the availability and disposition of the Province's oil and gas. The Commission concluded that, at that time, there were insufficient oil and gas reserves to permit export from Alberta. The report recorded the view expressed by those appearing before the Commission that the people of the Province should have prior claim on provincial gas supplies and that Canadian users should take priority over foreign purchasers when, and if, a surplus developed, a view supported by the Commission. Following receipt of the report, the Alberta government enacted in 1949 the Gas Resources Preservation Act and established the Petroleum and Natural Gas Conservation Board to regulate the removal of gas from Alberta among other responsibilities. The Gas Resources Preservation Act gave Alberta control over the disposition of its gas resources. In 1949, a number of gas pipeline proposals were being developed. In a debate on the Trans-Canada Pipe Lines bill in the House of Commons in February 1949, it was noted that the company had accepted the concept of an all-Canadian route, with its proposal making no reference to exports. This met the priority given to Canadians over export markets by the Alberta Dinning Commission.

**Pipe Lines
Act, 1949**

In April, the Pipe Lines Act was introduced in Parliament, providing for federal control of interprovincial and international oil and gas pipelines. The legislation, which became the Pipe Lines Act, R.S.C. 1952, c. 211, required that companies proposing to transmit oil or natural gas to markets outside a producing province must be incorporated by an Act of Parliament. A pipeline

project proposal would then be placed before the Board of Transport Commissioners which would examine details as to the route, adequacy of reserves and financing, and market availability before deciding on approval or rejection in accordance with the terms of the Pipe Lines Act. Shortly after the passing of the Act in 1949, three major pipeline companies were incorporated: Interprovincial Pipe Line Company, Westcoast Transmission Company, and Western Pipe Lines (which later became part of Trans-Canada Pipe Lines Limited). The passing of the Pipe Lines Act led to a number of pipeline proposals by these and other companies, and to the associated parliamentary debates concerning the extent to which Canadian oil and gas should be devoted to meeting Canada's own requirements and the extent to which exports to the United States might interfere with the objective of protecting Canadian requirements (see also March 1953 note on natural gas and oil export policy).

Alberta Gas
Resources
Preservation Act
1949; the first
Conservation
Board decision
of January 1951

In July the Gas Resources Preservation Act was passed in Alberta. The Act stipulates that no gas may be removed from Alberta unless a permit is granted by the Petroleum and Natural Gas Conservation Board (now the Energy Resources Conservation Board), with the approval of the Lieutenant Governor in Council. The Board is prohibited from granting a permit covering removal of any gas from Alberta unless such gas, in the opinion of the Board, is surplus to the present and future needs of the Province. In July, the Alberta government gave its newly-constituted Petroleum and Natural Gas Conservation Board authority to hear applications for removal of gas from the province. In its interim report in January 1951 on its first gas export hearing, the Board concluded that the available gas reserves were not much larger than the 30 years' supply of gas projected as Alberta's future needs, and it recommended that no export permits be granted. The Alberta government action in 1949 to enact the Gas Resources Preservation Act followed from its concern that outside corporate entities under federal government jurisdiction could gain primary access to Alberta's gas supplies, to the benefit of eastern Canada and export markets and the disadvantage of Alberta consumers in terms of supply security and price.

Federal Board
accepts priority
of Alberta
position on
gas removal
from Provinces

On September 12, the federal Board of Transport Commissioners ruled that a company required the Alberta government's permission to remove gas from that Province before the Board would hear an application for permission to build a pipeline. It had been advised by the Premier that a surplus of gas beyond the present and future needs of the province did not exist at the time and was not likely to exist for some time to come. The Alberta government's position reflected the conclusions of the Dinning Commission which had been established by the provincial government in November 1948 and reported to the Alberta cabinet in March 1949. The Commission recommended a policy of ensuring prior claims by the people of the province on provincial gas supplies, with other Canadian users taking priority over foreign users when, and if, a surplus developed in Alberta. In accepting this recommendation, the Alberta government enacted the Gas

Resources Preservation Act in 1949 and established the Petroleum and Natural Gas Conservation Board to regulate the removal of gas from the province (see note for March 1949).

Pipeline routing
and export
policy - key
policy statement

In a statement in the House of Commons in October, the Hon. C.D. Howe, in defending the federal government's intention to terminate the Interprovincial oil pipeline at Superior, Wisconsin, rather than at Fort William, stated that the decision was based on "a definite saving in the marketing of oil by that route". A line to Superior was expected to save in construction costs and provide for oil exports to the U.S., and the eventual extension of the line south of Lake Superior along a U.S. route would keep oil transportation costs lower than via an all-Canadian route, thereby reducing the price of oil in Ontario. In his statement in the House of Commons on October 4, the Minister set out a policy concerning oil pipeline routing and markets: "In my opinion international commodities such as oil that move freely from country to country and continent to continent, should not be confined by geography. The sensible way to market international commodities such as petroleum is to move them to markets nearest the source of supply. It is in the interests of users of petroleum to get that commodity from the cheapest sources. For eastern Canada and perhaps in the Montreal area the cheapest source is still the Caribbean or the gulf ports of the U.S. The best market for Alberta oil is that which could be made available nearest to the source of supply, and part of that market eventually may be in the United States" (see also note for March 1953).

Coal import duty
duty removed
on metallurgical
coal at end of
1949 and on all
coal in 1969

At the end of December, a 50 cent per ton duty on imported metallurgical coal was removed. A duty on imported coal had been maintained almost continuously since 1879 to assist the Nova Scotia coal mining industry and the Western Canada coal industry to develop their domestic market. The duty, as applied to metallurgical coal, was removed because most of this coal was being imported for use by the steel-making industry of Ontario which used little, if any, Canadian coal. Its continuing imposition would only have constituted a financial burden on Ontario steel makers with no corresponding benefit to Canada's coal producers. In 1967-68, a decision was taken to remove the import duty on the rest of the coal imports which were used for electrical generation in thermal power plants and the duty was completely eliminated on June 4, 1969. Although the import duty on metallurgical coal was removed in 1949, the Canadian Coal Equality Act was maintained to assist primarily the coal and steel industries of Nova Scotia and B.C. Support under that Act was terminated in 1970 (see note for March 1970).

Dept. of Mines
and Technical
Surveys
established

In December, the Department of Mines and Technical Surveys was established from the previous Department of Mines and Resources. The new Department consisted of five Branches: Geological Survey of Canada, Mines Branch, Surveys and Mapping Branch, Dominion Observatories, and Geographical Branch. The details of the new organization

were announced on January 18 and August 8 of 1950. Energy economic studies were to be conducted in the Mineral Resources Division of the Mines Branch, as had been the case in the predecessor Department of Mines and Resources. The Department of Mines and Technical Surveys Act was passed in December 1949 and came into force on January 20, 1950. At the same time two other Departments were established from the former Department of Mines and Resources -- the Department of Resources and Development, and the Department of Citizenship and Immigration. The Department of Mines and Technical Surveys became the Department of Energy, Mines and Resources, effective October 1, 1966.

THE YEAR 1950

Alberta oil prorating introduced

Effective January 1, the Alberta government established a plan of prorating of oil production to market demands in order to deal with the problem of an increasing oil surplus. Following the Leduc oil discovery of February 1947, oil reserves had increased quickly and, by 1949, Alberta oil fields had a capability of producing at rates in excess of the total demand of the Prairie Provinces. By 1957, over one half of Alberta's potential oil production was shut-in due to a lack of markets and one of the tasks of the Royal Commission on Energy, appointed in October 1957, was to make recommendations concerning this matter.

Maritime Coal Production Assistance Act

The Maritime Coal Production Assistance Act (13 Geo. VI, c. 29) was passed in 1949 and came into force on January 7, 1950. It followed from the recommendations of the 1946 Royal Commission on Coal which had concluded that the Cape Breton coal industry was in urgent need of mechanization and modernization to make N.S. coal competitive on world markets and to reduce the amount of transportation subventions being paid on it. The Act authorized the loaning of money to coal producers to assist them in improving their facilities and increasing the efficiency of their operations. The loans were administered by the Dominion Coal Board. The legislation was broadened in 1959 to extend its provisions to all of Canada in the form of the Coal Production Assistance Act (7-8 Eliz. II c. 39). This assistance was continued until 1970 when the Coal Production Assistance Act was revoked.

Alberta Oil and Gas Resources Conservation Act of 1950, and Conservation Board

In 1938, the Government of Alberta set up a Petroleum and Natural Gas Conservation Board which was given the responsibility of administering the Oil and Gas Wells Act and the Oil and Gas Resources Conservation Act. Effective January 1950, these Acts were repealed and consolidated in a new Act known as the Oil and Gas Resources Conservation Act, 1950. The intent of this Act, and of succeeding legislation, has been to effect the conservation of the oil and gas resources of Alberta; to prevent the waste thereof; to regulate the safe drilling, production and abandonment of wells and all other operations for the production of oil or gas; and to give each owner the opportunity of obtaining a just and equitable share of the production of any pool. The Petroleum and Natural Gas Conservation Board of Alberta (now the Energy Resources Conservation Board) is constituted under the Act as a body politic and corporate. Oil and gas production and conservation legislation in other provinces was modelled to a considerable extent on the basis of the Alberta legislation.

Interprovincial oil pipeline completed to Lakehead -

In October, Interprovincial Pipe Line Company completed the construction of its 1,100 mile pipeline to Superior, Wisconsin. The Company, which was incorporated by Special Act of Parliament in 1949, had planned initially

to build and operate a crude oil pipeline from Edmonton to Regina. The rapid saturation of oil markets in the Prairie region and the discovery of several fields shortly after the Leduc discovery in February 1947, led to plans to extend the system beyond Regina which had been reached in June 1949. By the end of 1950, Interprovincial was delivering Alberta crude into storage at Superior for transportation by Lake Tanker to Sarnia during the shipping season.

THE YEAR 1951

Canadian-Montana
gas export
project -
Western Canada's
first export of
natural gas was
controversial

On March 13, a bill to incorporate Canadian-Montana Pipe Line Company was introduced in the House of Commons. The bill proposed the construction of a natural gas pipeline from the southeastern corner of Alberta to Montana in order to supply Alberta natural gas to the Anaconda Copper Company smelter at Butte in northern Montana. After considerable debate in Parliament, the bill was passed and a special federal permit to export gas was issued by the end of 1951 covering gas deliveries for a five-year period. Although the Alberta Petroleum and Natural Gas Conservation Board had reported in January 1951 that Alberta only had 4.5 trillion cubic feet of gas reserves and had recommended that no export permits be granted until reserves increased, the Alberta government enacted a special law in 1951 allowing the removal of 23.8 billion cubic feet per annum for the Montana project, at daily rates up to 40 million cubic feet. During the debate in the House of Commons in March and April 1951 on the Canadian-Montana Pipe Line bill, opponents of the legislation argued that gas from the field could best be used for the proposed Trans-Canada pipeline to eastern Canada as well as for the Calgary market. Because the U.S. government had asked the Canadian government to ensure the availability of this gas in order to meet emergency gas requirements of the metal industries in Montana, the debate on the bill in March and April involved continental defence arrangements between Canada and the U.S. Those who opposed the bill argued in terms of the priority of domestic requirements and the danger of commitment to the U.S. market at the expense of Canadian needs, particularly in relation to plans to deliver Alberta gas to eastern Canada. The project was approved during the course of the Korean War, which had started in July 1950 (and ended in July 1953), and was the first significant gas export. As noted in the March 1957 note on the Royal Commission on Canada's Economic Prospects, the Commission was critical of the export price approved by the federal government for this project.

Canada's first
major uranium
mine

In March, Eldorado Mining and Refining Limited announced production plans for its Ace deposit in the Beaverlodge region north of Lake Athabasca in northwestern Saskatchewan. Uranium occurrences in this region had been discovered in 1944 and some preliminary development work had been done by Eldorado. The company also acquired a large block of mining claims in the vicinity of the Box gold mine which had operated in the period 1939-1942. With the lifting of restrictions on private prospecting late in 1947, radioactive occurrences were discovered, with the most attractive prospects being in the Beaverlodge region and in the N.W.T. between Great Bear Lake and Great Slave Lake. However, none yielded results as favourable as those obtained at Eldorado's Ace property where extensive tonnages were indicated. At the same time, research was

underway in the Mines Branch of the Department of Mines and Technical Surveys (now EMR) in Ottawa to develop a uranium recovery process that would make the Ace Lake uranium material economic to recover. Following the announcement of production plans in 1951, Eldorado proceeded actively to prepare its mine for production which also included the construction of a leaching plant. Production began in 1953 at 500 tons a day, with the plant being later enlarged to 2000 tons per day capacity. This was Canada's first uranium mine, Eldorado's Great Bear Lake mine in the 1930s and in the war period having been primarily worked for radium and its silver content.

Trans Mountain
Oil Pipe Line
Company
incorporated

Trans Mountain Oil Pipe Line Company was incorporated by Special Act of Parliament in April to transport crude oil from Edmonton to Vancouver for the supply of refineries at that centre and also, by means of spur line, to supply U.S. refineries in the Puget Sound area, a few miles south of the international boundary. The Vancouver refineries were obtaining their crude oil from offshore sources, mostly by tanker from California, and more than half of the petroleum product demand of British Columbia was being met by product imports. The States of Washington and Oregon were also dependent on imports and, for defence reasons related to the Korean crisis, the U.S. government was concerned that refineries being constructed in the Puget Sound area should be supplied from a source which did not involve ocean transportation. These factors, together with the continued development of oil reserves in Alberta and the success of Canadian oil industry in obtaining financial support from various oil companies in the U.S. interested in refining Alberta crude oil in the Puget Sound area, led to the incorporation of Trans Mountain. The pipeline system was completed in 1953 (see note for December 1951 and October 1953).

Trans-Canada
Pipe Lines Ltd.
incorporated
- enters into
competition with
Western Pipe
Lines - merger
in 1954

In April, Trans-Canada Pipe Lines Limited was incorporated by Special Act of Parliament, the company's intention being to build an all-Canadian pipeline eastward from Alberta across northern Ontario to deliver natural gas to Toronto and Montreal. It became a strong competitor for Alberta gas of Western Pipe Lines Limited, which had been incorporated in April 1949 by Special Act of Parliament. Western Pipe Lines planned to construct a gas pipeline to Winnipeg and south to an export point at Emerson on the Manitoba border, and in February 1950, it applied to the Alberta Petroleum and Natural Gas Conservation Board for the right to export gas over a period of 30 years. In January 1951, the Board concluded that there was not at that time, sufficient proven gas reserves to meet Alberta's future needs. Western Pipe Lines was backed by four Canadian financial and utility groups and had a gas sales contract with Northern Natural Gas Company to sell gas in Minnesota and other mid-west States. Trans-Canada, then a subsidiary of Canadian Delhi, a branch company of Texas natural gas interests, was part of the first group to explore exclusively for gas in western Canada and, in addition, Trans-Canada by 1953 had spent twice as much as Western Pipe Lines on pipeline feasibility, and market

studies. In January 1954, the two rival groups - Western Pipe Lines and Trans-Canada agreed to merge (see note for January 1954).

**Sarnia basing
point sets oil
prices**

When shipments of Alberta crude first reached Ontario refineries in April 1951, wellhead prices of these crudes dropped as much as 44 cents per barrel in order to compete with U.S. crudes delivered to Sarnia. This refinery centre then became known as the "basing point" for wellhead prices in western Canada. This pricing system continued until 1959 (see note for March 1959).

**Trans Mountain
oil pipeline
proposal
supported by
U.S. government**

In its report of December, the U.S. Petroleum Administration for Defence referred to the warning given by the National Petroleum Council in November 1950 of the need for adequate production and transportation facilities to ensure timely supply of needed petroleum products in all parts of U.S. industry. As a result, the Petroleum Administration for Defence (PAD) undertook a study in 1951 of probable future demand, estimated future refinery capacity, and estimated future producibility of crude oil and natural gas liquids. These three significant benchmarks were studied in terms of the five PAD Districts in the U.S. so that the transport facilities required to provide an integrated flow could be outlined. In its examination of District V, covering the Pacific Coast States, the PAD also examined the petroleum supply and demand situation in western Canada, particularly in relation to the potential of Alberta oil fields to supply the oil needs of British Columbia and of the adjacent Pacific Coast States of Washington and Oregon. The major considerations were the defence needs of the U.S. Pacific Northwest during the Korean crisis and the desirability of making available to this region as much producible crude oil from the Western Hemisphere as possible. The report concluded that: "No practical means of accomplishing these desired defence considerations other than an Alberta-Puget Sound pipeline is apparent. The crude oil pipeline from Alberta to the Puget Sound area is recommended, therefore, along with the construction of increased refining capacity. The Petroleum Administration for Defence should assist in acquisition of steel to this end". This led to approvals in Canada and the United States for the construction of the 719-mile Trans Mountain Oil Pipe Line system from Edmonton to Vancouver, with a spur line to Ferndale, Washington. Construction was started in March 1952 and the line to Vancouver was completed in October 1953, and to Ferndale early in 1954.

THE YEAR 1952

Mineral map
of Canada
- Map 900A

In March, a new mineral map of Canada was issued by the Department of Mines and Technical Surveys, bringing up to date the information shown on a map issued in 1947. Since 1952, this map, Map 900A Mineral Map of Canada, has been issued on an annual basis and receives wide distribution. The 1952 and subsequent editions show in colours the main geological divisions of the country. Also shown are the locations of the principal metallic and non-metallic mineral properties, the coal properties, the oil and natural gas fields, and the pipelines. Additional information includes statistics on mineral production, and small-scale insert maps showing the locations of smelters and refineries and principal producing areas of various minerals. Indexes of mines and oil and gas fields, by province, are recorded on the margins of the map.

Saskatchewan
oil and gas
legislation

On April 4, the Oil and Gas Conservation Act of Saskatchewan was passed to be followed by the Oil and Gas Well Regulations in February 1953. This Act and the Regulations, which have been amended to meet changing circumstances, replaced in the early 1950s the former inadequate oil legislation. Legislation comparable to the Alberta Mines and Minerals Act was incorporated in the Saskatchewan Mineral Resources Act which provides for the disposition of oil and gas rights. In 1953 the Premier of Saskatchewan stated that the policy for the development of oil and gas resources in the Province was based upon a recognition of two principles: "it is necessary to secure to the people of the Province a fair return from the production of petroleum of which the people are the true owners, by means of Crown reserves in all parts of Saskatchewan and in the form of royalties upon the petroleum that is produced; and the Province will stand by all agreements it enters into and it has no intention of either expropriating or socializing the oil industry".

Westcoast
Transmission
gets access
to Alberta gas

On June 16, the Alberta government issued a permit to Westcoast Transmission Company, allowing the Company to remove gas from the Peace River area of Alberta for its proposed pipeline to Vancouver and to an export point on the B.C.-Washington border. The Alberta government had concluded that the gas in the northwest part of the province, but not that in the southern part, was surplus to the requirements of the Province. The decision in effect deprived Westcoast's two competitors from a source of gas in Alberta. Both Prairie Gas and Alberta Natural Gas had proposed to supply the U.S. Pacific Northwest and the Vancouver area with Alberta gas delivered in pipelines originating in southern Alberta and proceeding via a U.S. route to the Portland and Seattle areas and then north to Vancouver. The fact that both of those proposals would have involved main lines south from Alberta to the international boundary, and an American routing to the west coast, had led to considerable debate in Parliament in October and November 1949 when the two groups applied for a

Special Act of incorporation. The Westcoast Transmission Company bill received Parliamentary approval, and the project was later approved by the Board of Transport Commissioners, and by the federal government in December 1953 and in June 1955, because its route would ensure priority of service to Canadian communities.

U.S. crude
oil import
tariff

With the coming into force of the United States and Venezuela Agreement on October 11, the U.S. import tariff on oil of 25 degrees A.P.I. gravity or less was lowered to 5 1/4 cents, and for oil of 25 degrees A.P.I. gravity or above the rate was set at 10 1/2 cents per barrel. Prior to that time, 10 1/2 cents per barrel was paid on all oil moving into the U.S. up to a volume equal to 5 per cent of U.S. domestic refinery runs during the preceding year, and a rate of 21 cents on crude and fuel oil imported beyond that limit. The agreement, which also applied to Canadian crude oil imports into the U.S., was important in view of plans of Canadian producers to move crude oil into the Pacific Northwest States on completion of the Trans Mountain Pipeline in 1953. There has been no tariff on crude oil imported into Canada.

AECL established
- takes over
Chalk River
project for
nuclear power
and radio-
isotopes R&D

Atomic Energy of Canada Limited (AECL) was formally incorporated as a Crown Corporation on October 23, following its incorporation as a company by letters patent, dated February 14, 1952. An agreement, effective April 1, 1952, was made for the transfer of the Chalk River project from the Atomic Energy Control Board (AECB) to AECL, but still reporting to AECB. The 1954 amendments to the Atomic Energy Control Act changed the reporting relationship for AECL from AECB directly to the Minister (see note for June 1954). The objectives of the AECL program included the development of economic nuclear power in order that it would be available for use in Canada in those regions where a new source of energy would be required to supplement existing conventional sources. The AECL mandate also called for it to carry out the development of nuclear power in a manner which would provide for the most effective participation of the electric utilities and the manufacturers. It was further directed to endeavour to expand the market, both domestic and foreign, for Canadian uranium. It had the important research-related responsibility of producing and marketing radioisotopes for use in industry, medicine and research, and of developing new uses for these radioisotopes. In 1952, cobalt-60 therapy treatment for cancer was first introduced into Canadian hospitals, and there was great interest in using radioisotopes and related equipment in many areas of research, industry, and medicine. The Commercial Products Division of AECL was established in 1952 to market radioisotopes and to develop new uses for them.

Canadian
Petroleum
Association

At a meeting of the Western Canada Petroleum Association on December 9, it was decided that the name of the organization should be changed to the Canadian Petroleum Association (CPA) and a new constitution was

adopted. At the same time bylaws were passed establishing separate divisions in Alberta, Saskatchewan, and British Columbia, to be responsible for affairs of a provincial nature. An Ottawa office was also opened, and a Pipeline Division later formed to be responsible for matters affecting the pipeline segment of the industry. An extensive committee system evolved over the years to conduct and prepare background material for most Association activities. The CPA is one of Canada's oldest trade organizations. In 1927, as field development progressed in the Turner Valley field, discovered in 1914 near Calgary, the Alberta Oil Operations' Association was established to assist the small oil industry with many unique and complex problems. In 1929 the organization was enlarged to form the Oil and Gas Association of Alberta involving all branches of the industry. In 1936 the Petroleum Producers' Association was formed to investigate the marketing of a large pool of crude oil which had been discovered in Turney Valley and, in 1938, the two Alberta groups merged to become the Alberta Petroleum Association which was renamed the Western Canada Petroleum Association in 1947, the year of the Leduc oil discovery. As the Canadian Petroleum Association, it became a national trade association in 1952. At that time, it merged with the Saskatchewan Operators Association. The Canadian Petroleum Association established an information office in Ottawa in 1958, and regional offices in Victoria in 1960, in St. John's in 1981, and in Halifax in 1983. Its committee system is organized in terms of several committee groupings related to exploration, natural gas policy, oil policy, production, resource economics, public affairs and socio-economic matters, and pipeline matters.

NRX reactor accident

In December, the NRX (Nuclear Research Experimental) reactor was put out of commission for 14 months as a result of a major accident caused by operational and equipment failures. The incident provided practical experience on how to prevent reactor accidents from happening in the future, priority being given to the quality of safety devices rather than to their number. Later, in 1956, the Reactor Safety Advisory Committee was established and other safety and health measures were implemented (see note for August 1956). The NRX had begun operations in the summer of 1947.

THE YEAR 1953

Uranium resource
rapid
development in
the 1950s, and
subsequent
decline

The Crown company Eldorado Mining and Refining Limited announced production plans for its Beaverlodge property in the Lake Athabasca region of northern Saskatchewan in March 1951. Production began at Canada's first uranium mine in 1953 and the mine and leaching plant were later enlarged to mine and process 2,000 tons of uranium ore a day. The first major private mine development was planned in 1953 when Gunnar Gold Mines Limited announced in January its intention to proceed with a mining operation in the same area. Its mine went into production in 1955. The next major development was in the Blind River district of Ontario where a major discovery had been made 1948. The Pronto mine was brought into production in 1955 and, several other deposits were explored. In 1957, the Elliot Lake (Blind River) district became Canada's main uranium camp. By the end 1956, four large private uranium mines, with their own plants, were producing: one at Beaverlodge, two near Blind River, and one near Bancroft, Ontario. A number of other smaller mines were being brought into production, chiefly in the Beaverlodge and Elliot Lake areas. By 1962, about \$1.7 billion worth of contracts for uranium had been signed. Because of the rapid development of uranium resources in the mid-1950s, resulting in 19 mines with treatment plants and a number of small operations in 1958, uranium was no longer in short supply, and the federal government had announced that applications for sales contracts would not be accepted after March 31, 1956. By the end of that year, uranium prospecting began to decline (see note for November 1959). Uranium production activities peaked in 1958, with 19 mines producing uranium concentrates from individual treatment plants and 7 other mines shipping ores to those plants. By the end of 1960, only 11 mines were in operation and by the end of 1965, only 3. It was not until 1975 that a new mine was brought into production.

AECL design of
NPD leads to
to CANDU

In a House of Commons debate of February 17, 1953, the Minister of Trade and Commerce (C.D. Howe) indicated the government's intention to encourage the development of atomic power in Canada for energy supply purposes. Later in the year Atomic Energy of Canada Limited (AECL) began a reactor feasibility study to determine general specifications for a small or prototype power reactor. At this point, AECL saw its role as one of a research and development agency, with Canadian industry being responsible for the design of nuclear reactors and their construction. When AECL's feasibility study was completed in 1954, a team consisting of AECL, Ontario Hydro and Canadian General Electric Limited then proceeded with the final design and construction of a prototype reactor called NPD (Nuclear Power Demonstration). After considerable design change, the NPD was completed and had start-up in 1962. The final design concept contained all of the basic features of the subsequent CANDU series of reactors which

became unique among the world's power reactor types, being fueled by natural uranium, moderated and cooled by heavy water, equipped with a horizontal pressure-tube arrangement, and could be refueled while on power.

Natural gas and
oil export
policy
statements, 1953

On March 13, the Hon. C.D. Howe announced in the House of Commons (Debates, March 13, 1953, pp. 2928-9): "the policy that guides the export of electricity since 1907 applies within reason to the export of natural gas". Accordingly, authority would only be given for the export of natural gas to the extent that the federal government was convinced that "there can be no economic use, present or future, for that gas within Canada". The federal government exercised control over the exportation of natural gas under the Electricity and Fluid Exportation Act of 1907 which was revised to the Exportation of Power and Fluids and Importation of Gas Act in 1955. In 1959 that legislation was replaced by the National Energy Board Act. With respect to petroleum, the Minister stated that Canada's policy should have two components: "to move petroleum from the source of production to refineries within economic distance in the cheapest possible way"; and "to arrange for markets for that portion of Canadian output that cannot be economically used in Canadian refineries in the market that offers the highest return to the producer". The oil policy was consistent with the decisions that had been taken a few years earlier with respect to the Interprovincial pipeline to Sarnia and was a restatement of a government policy announcement in October 1949 concerning the Superior, Wisconsin terminus location of the Interprovincial pipeline. Economies of scale were being achieved through the provision of exports to the nearest available market and American routing. With respect to the Westcoast Transmission decision, which might appear to be in contravention of the 1953 gas policy statement, the Minister noted that export permission was given in 1952 because of gas shortages in the U.S. Pacific Northwest and the insufficient demand in the Vancouver market which made the area in the U.S. a logical market for Westcoast's Peace River gas. Furthermore, there appeared to be substantial reserves to meet the needs of B.C. after guaranteeing a substantial export of gas to the U.S.

Haines -
Fairbanks oil
products
pipeline

A Canada/U.S. agreement of June 30 provided for the construction of a 625-mile, 8-inch diameter oil products pipeline from Haines to Fairbanks, Alaska, over a 293-mile Canadian route in B.C. and the Yukon. It was planned primarily for defence reasons related to the Korean War and was completed in late 1954. British Columbia facilitated the transfer of land, for the right-of-way, to the Canadian government by an Order in Council of May 2, 1953, and administration and control was shortly thereafter transferred by Canada to the U.S., subject to the conditions stipulated by the B.C. government in the Order in Council. Subsequent agreements in 1960 and 1962 conveyed certain facilities to the Canadian government, and provided for the addition of new pumping stations. The 1953 Agreement was to last 20 years until June 1973 when either signatory could terminate it unilaterally following

consideration by the Permanent Joint Board on Defence (PJBD). Due to serious deterioration of the pipeline, much of the line being above ground, the U.S. announced at a PJBD meeting in 1971 that it would discontinue use of this oil products transportation facility. After intermittent negotiation in the 1970s, concerning possible operation of the line by a Canadian company and concerning control of the right-of-way under such a circumstance, the June 1953 agreement was finally terminated on January 12, 1980. Like the Canol pipeline, built in World War II to deliver crude oil from the Norman Wells, N.W.T. field to a refinery in Whitehorse, the Haines-Fairbanks pipeline was only used for a very short period in the transportation service for which it was constructed but both projects involved extensive Canada/U.S. planning and cooperation.

Trans Mountain
Oil Pipe Line
system completed
- later
expanded

The Trans Mountain Oil Pipe Line Company commenced construction of its 719-mile, 14-inch pipeline in February 1952 and, after a halt in construction in the winter of 1952-53, completed the system in October 1953 at a cost of \$93 million. A spur line to Ferndale, Washington, to supply newly-constructed refineries in the Puget Sound area, was completed in 1954. Constructed across the mountainous Cordilleran Region, the pipeline was considered at that time one of the most difficult construction projects ever attempted in the pipeline industry. The initial capacity of the system was 120,000 barrels per day. In expanding into the west coast market, no reduction in wellhead prices in Alberta was involved. With wellhead prices continuing to be based on competition at Sarnia with potential crude oil imports from the U.S. midwest (Illinois) to that refinery centre, Alberta crude had a price advantage in Vancouver, and also in the Puget Sound area, even after paying the U.S. import tariff of 10 1/2 cents per barrel. With growth of this Puget Sound market particularly at the time of Suez Canal crisis in late 1956 and early 1957, Trans Mountain continued to expand its system which, by the end of 1957, had a throughout capacity of 250,000 barrels per day. The four major oil companies with refineries in Vancouver were the major shareholders in Trans Mountain at that time.

Pipe Lines Act
1953 amendment

In an amendment of December 16 to the Pipe Lines Act, Parliament closed a loophole in the legislation by adding a definition of "extra-provincial pipe line" and a new section prohibiting any person other than a Special Act company from constructing or operating an extra-provincial pipeline. By this amendment, Parliament asserted strict control over all interprovincial and international pipelines. The National Energy Board Act of 1959 replaced the Pipe Lines Act of 1949, as amended, and the Exportation of Power and Fluids and Importation of Gas Act of 1907, as amended. Like its predecessors, the NEB Act provided that only Special Act companies would be permitted to construct or operate extra-provincial pipelines, although Section 79 permitted certain provincial legislation to apply to the undertaking of Special Act companies.

Board of
Transport
Commissioners
authority

In December, the House of Commons gave approval to a bill granting the Board of Transport Commissioners complete jurisdiction over location, construction, and operation of interprovincial and international oil and gas pipelines in Canada. This followed amendment of the Pipe Lines Act on December 16.

Interprovincial
oil pipeline
completed to
Sarnia, later
extended to
Toronto

In December, Interprovincial Pipe Line Company (IPL) completed its system to Sarnia, Ontario, by a 643-mile extension from Superior, Wisconsin, to provide for a pipeline system from Edmonton to Sarnia over a 1,765-mile route. The 1953 project included the longest underwater crossing ever undertaken, two pipelines, 20 inches in diameter, being pulled across the 21,000 foot width of the Mackinac Straits. The section east of Superior replaced shipment by tanker. Interprovincial's U.S. subsidiary, Lakehead Pipe Line Company Inc., operates the 969-mile section of the system in the United States. At the end of 1953, Interprovincial had a capacity of 200,000 barrels a day out of Edmonton, the tariff to Sarnia being 64 cents per barrel. Crude oil delivery into Sarnia commenced on January 8, 1954. A further extension was made to Port Credit, near Toronto, in 1957. The initial construction and each subsequent stage of expansion of the Interprovincial system over a 1930-mile route were based on the assumption by the major oil companies that the competitive position of Canadian crudes in the new market would not deteriorate. Financial risks were involved and in the original financing of the Interprovincial Pipe Line Company, Imperial Oil Limited undertook sufficient throughput obligations through two agreements dated October 1, 1949 to service the funded debt of IPL. Commitments were also made to certain refining companies concerning delivered prices.

Alberta declares
gas surplus for
eastern
pipeline

In December, the Alberta government announced that Alberta had available for eastern export approximately three and one-half trillion cubic feet of deliverable surplus gas, and it anticipated that this surplus would increase to some five trillion cubic feet by the time a pipeline could be constructed, provided the incentive necessary to stimulate continued gas resource development was maintained. This led to the merger in January 1954 of the two companies that had been incorporated to transmit natural gas eastward from Alberta, and to intense activity to finance a pipeline over an all-Canadian route to central Canada, with an export component south from the Manitoba border.

Special price
contracts for
uranium
development

On December 10, arrangements were entered into with the U.S. Atomic Energy Commission whereby it agreed to purchase any uranium that Eldorado Mining and Refining Ltd. might purchase from Canadian producers under terms of special price contracts. The first such special price purchase arrangement was made by Eldorado with Gunnar Mines Ltd. which went into production in the Lake Athabasca area of Saskatchewan in 1955. As a result of this special price incentive, development of lower grade deposits was accelerated, rather than high grade pitchblende deposits similar to the Great Bear Lake mine that had operated during World War II. By 1956, uranium was no longer in short supply (see note for March (1956)).

THE YEAR 1954

CANDU system development

In January, Atomic Energy of Canada Limited (AECL), a federal Crown company, and Ontario Hydro commenced joint feasibility studies towards the development of the Canada-Deuterium-Uranium (CANDU) nuclear reactor system. The system is cooled and moderated by heavy water (deuterium oxide) and fueled by natural uranium. In the CANDU reactor, pressurized heavy water coolant, in a circuit separate from the "moderator", is pumped over the fuel bundles removing the heat released in the fission reaction. This heat is then transported to heat exchangers and boilers, and is used to produce steam which turns the turbine generator to produce electricity. The NPD (demonstration power reactor) Generating Station at Rolphton, Ontario, became operational in 1962; the Douglas Point Station at Tiverton in late 1966; the four units of the Pickering Station 'A' in the period 1971-73; the four units of Bruce 'A' at Tiverton in 1976-79; the Gentilly 2 Nuclear Power Station at Gentilly, Quebec in 1982; the Point Lepreau Station at Point Lepreau, N.B., in 1982; the four units of the Pickering 'B' Station in 1982-84; the four units of Bruce 'B' scheduled for the mid to late 1980s; and the four units of the Darlington Station at Bowmanville, Ontario, scheduled for the late 1980s and early 1990s (see also note for October 1952 and CANDU references). The evolution and development of the CANDU reactor system produced a technology suited to Canada's industrial structure, resource base, and accumulated expertise. Over this period of development, AECL has taken responsibility for the design and overall project management of CANDU reactors, and also for reactor sales abroad and for heavy water production. Ontario Hydro and public utilities in Quebec and New Brunswick have assumed project management responsibility for reactors constructed in their respective provinces. Private industry has had the role of manufacturing components and providing engineering services for reactors designed by AECL and built for provincial utilities.

Alberta Gas Trunk Line Company established as the provincial gas gathering system

Effective January 1, Alberta Gas Trunk Line Company (AGTL) was established by the Alberta government as the sole provincial gas gathering pipeline system. The company was incorporated with voting shares almost entirely limited to producers and distributors of gas within Alberta. Membership on its board of directors was representative of these two classes of shareholders, along with two directors chosen by the provincial government and one by the gas exporters. The Alberta government thereby kept jurisdiction over gas gathering pipelines within the province. There had been concern within Alberta that federally incorporated pipelines would extend their gathering lines across the Province's borders into its major gas fields and that this could undermine Alberta's emphasis on local priority with regard to supply and

price. In the fall of 1954, AGTL was unable to supply a schedule of tariffs for Trans-Canada, making it impossible for that company to arrange purchase contracts at that time with major gas producers. Pipeline companies planning to transport Alberta gas to eastern Canada or to export markets could only take delivery of that gas from AGTL at a point on the Alberta border.

Trans-Canada -
Western
Pipelines merger
prepares way
for all-Canadian
pipeline route

The Trans-Canada gas pipeline project had been under study since 1950 by the two predecessors of Trans-Canada Pipe Lines Limited. In that year Trans-Canada and Western Pipe Lines Limited placed applications before the Petroleum and Natural Gas Conservation Board of Alberta for permission to remove natural gas from the Province. Late in 1953, that Board declared a surplus of gas for use outside of Alberta. In January 1954, the two companies agreed to amalgamate after having spent considerable amounts in the previous three years on feasibility studies. Trans-Canada had been proposing an all-Canadian route to Toronto and Montreal; Western was planning to build a pipeline to Winnipeg and south to Minneapolis, to be followed in a second phase by a route to central Canada, via the U.S. As a condition to making the gas available, the Alberta government required that suitable markets be obtained to enable the payment of fair and equitable prices to producers, and at the same time ensure that the proposed line could be successfully financed. The March 1953 federal government policy statement had specified that gas could be exported to the extent that it was surplus to present and future Canadian requirements. However, when the Trans-Canada incorporation bill was approved in 1951, a rider was attached stating that the main pipeline or lines were to be located entirely within Canada. On the basis of these various requirements, promoters of the two companies as merged into Trans-Canada Pipe Lines Limited in 1954, proceeded to endeavour to finance the project following the intense rivalry between them of the previous three years. In May 1954 the new company received authorization from Alberta to remove 500 million cubic feet of gas per day from the Province and the federal government promised to permit export of 200 million cubic feet per day at Emerson, Manitoba.

Trans-Canada
gas market in
Toronto
protected by
legislation

By the spring of 1954, while plans were still being developed to build a pipeline from Alberta to central Canada, the energy requirements of Ontario were increasing at an unprecedented rate. In March, Consumers' Gas Company, which had served the Toronto area with manufactured gas since 1848, considered it necessary to secure a supply of natural gas. Being uncertain of when and on what terms it might be able to purchase Alberta gas, it contracted to buy gas from the southern U.S. and to have the supplies transferred to Canada via the facilities of Tennessee Gas Transmission Company. The federal government concluded, however, that the loss to the Canadian suppliers of the Toronto market would make the construction of the proposed Trans-Canada line to bring gas from Alberta to Ontario and Quebec impracticable. Until the Electricity and Fluid Exportation Act could be changed (see June 1955

note), the federal government employed the Navigable Waters Protection Act to forestall any move to construct a pipeline across the Niagara River to bring in U.S. gas via the Tennessee Transmission system. In 1955, the government introduced an amendment to the 1907 Electricity and Fluid Exportation Act to make imports of gas subject to licence. This enabled the government under the new Exportation of Power and Fluids and Importation of Gas Act to control gas imports. Consumers' Gas was advised that a long-term import licence, which would in effect close the Toronto market to Alberta gas, could not be contemplated but arrangements were made for the importation of gas under a short-term contract pending delivery of Canadian gas from Alberta. A 76-mile pipeline from a point on the Canada-U.S. border near Lewiston, N.Y. to Toronto was completed late in 1954 to provide for importation of gas under the short-term contract.

Trans-Canada
receives
authority to
remove Alberta
gas

On May 14, a permit was issued by the Government of Alberta authorizing Trans-Canada Pipe Lines to include in its plans the old Western Pipe Lines scheme for exporting gas to the United States at Emerson, Manitoba. A proviso stipulated that Trans-Canada submit evidence before the end of 1954 that it could finance the project, that construction would start by June 1, 1955, and that first removal of gas from Alberta would begin by December 31, 1955. The permit provided for the removal of a total of 4.35 trillion cubic feet of gas from Alberta, of which Trans-Canada planned to export 1.33 trillion cubic feet to the U.S. The permit covered a 27-year period.

Westcoast
Transmission
proposal to
export gas to
U.S. rejected
by FPC

After incorporation in 1949, Westcoast Transmission Company had commenced preparations for the construction of a gas pipeline from the Peace River area of northeastern B.C. and northwestern Alberta through British Columbia to Vancouver with a line south to the international boundary to link with pipeline systems serving the Pacific Northwest States of Washington and Oregon. The Company's U.S. affiliate had placed an application in June 1952 before the U.S. Federal Power Commission to import gas from the Westcoast Transmission system and, after lengthy hearings, this application was turned down in June 1954. Instead, approval was given by the FPC to a proposal to transmit gas into the Pacific Northwest States from New Mexico (see notes on Westcoast for June and November 1955).

Atomic Energy
Control Act
amendments -
decline in AECEB
authority in
mid-1950s

In June, amendments to the Atomic Energy Control Act were introduced in the House of Commons. In a statement on June 2, the Minister responsible for the Atomic Energy Control Board (C.D. Howe) expressed the hope that the controls then in effect concerning atomic energy in Canada would be removed within two or three years. The amendments passed at that time provided for the separation of administrative control from operational responsibilities for atomic energy in Canada. They also made provision for Atomic Energy of Canada Limited (AECL) which had been created in 1952 and was reporting to the AECEB, to report

directly to the Minister effective April 1, 1954. This meant that the Board had no direct involvement with either of the two major operational entities in Canada's nuclear industry - Eldorado Mining and Refining Limited concerned with uranium mining and processing, and AECL concerned with research. Eldorado's reporting responsibilities were transferred by the same amendments. The AECL was therefore left with considerably reduced powers, having no major input into either of the Crown companies. This came at a time when atomic energy in Canada was on the threshold of a period of significant growth, requiring well-planned and adequately administered control.

Trans-Canada
receives Board
of Transport
Commissioners
authority to
construct a line
across Canada
but fails to
finance it in
1954-55

On July 24, the Board of Transport Commissioners issued an order granting Trans-Canada Pipe Lines Limited the right to construct a 2250-mile pipeline to Ontario and Quebec markets, subject to consideration of using the northern Ontario clay belt route instead of the CPR route and subject to completion of financing arrangements by December 31, 1954. However, by the end of the year, no supply or marketing contracts had been obtained and the Company had not been able to arrange for financing. Trans-Canada in January 1955 asked the federal government for an undertaking to meet any payments due for the following few years on the first mortgage bonds to the extent that the Company was unable to provide funds out of its depreciation and net earnings. This request was rejected and the Company then entered negotiations with the Bank of Canada for a loan from the Industrial Development Bank. After lengthy negotiations, the Bank of Canada in March 1955 agreed to participate in the financing on the basis of a commitment of \$60 million in convertible debentures and \$5 million in common (voting) shares. However, Canadian Gulf refused to sign a gas supply contract, essential to the financing, if the federal government through the Bank of Canada held common shares which would give it potential control of Trans-Canada. On March 23, 1955, the government announced it had turned down the Trans-Canada request for a bond guarantee. The Company concluded it could not start construction in 1955.

Nuclear
non-
proliferation -
declassification
of secret
information,
maintenance of
security

In October, the Seventh Declassification Conference involving the U.S., U.K., and Canada was held following a series of conferences which had been initiated in November 1947 to develop a common declassification policy for nuclear information that had been held secret during the Second World War to prevent proliferation of nuclear weapons information. Following the war it became evident that the U.S., U.K. and Canada should be prepared to declassify nuclear information relative to nuclear weapons in order to assist programs for the development of peaceful uses of atomic energy in other countries. Declassification guides were prepared and adopted and, following the 1954 Conference, much information concerning raw material production, reactor design and construction, health precautions and medical biological research was declassified and published for the First Conference on the Peaceful Uses of Atomic Energy held in Geneva in 1955. In

the period following the war, security concerned with the protection of nuclear plants and nuclear materials was closely related to secrecy of information. Security arrangements developed over the years have been specially designed to prevent theft of strategic nuclear materials, and to protect all other related facilities not having such materials in a manner comparable to industrial property protection as practiced in Canada.

**Saskatchewan
oil field
development
in the 1950s**

The record at the end of December showed that a number of light oil discoveries had been made in Saskatchewan in 1954 in the southeastern corner of the Province. Medium gravity crude oil had been discovered in southwest Saskatchewan in the early 1950s and, in 1954, the South Saskatchewan Pipe Line Company constructed a 153-mile pipeline from the Swift Current area to Regina for the purpose of transporting medium gravity crude from southwest Saskatchewan fields to the Interprovincial Pipeline for trans-shipment to St. Paul, Minnesota. An integrated production, transportation and refinery operation was thereby established to serve the St. Paul area where refinery construction was designed to use the medium gravity, high sulphur crude oil of southwest Saskatchewan. In 1956 the Westspur pipeline from the light gravity fields of southeast Saskatchewan to the Interprovincial Pipeline system was constructed, providing an increasing market in eastern Canada and the U.S. mid-west for this oil. With transportation facilities established for the oil fields developed in Saskatchewan following the Leduc, Alberta oil discovery in 1947, Saskatchewan's oil production increased rapidly but never exceeded about 15% of the Canada total, with Alberta continuing to account for well over 80% of the country's production.

THE YEAR 1955**Atomic Energy
Agreement --
Canada-U.S.**

An Agreement for Cooperation Concerning Civil Uses of Atomic Energy between the Government of Canada and the Government of the United States was signed on June 15. The two countries agreed to assist each other in the achievement of the objectives of their respective atomic energy programs to the extent such assistance would be relevant to current and projected programs. It was expressly understood that the design, fabrication, disposition, or utilization of atomic weapons would be outside the scope of the Agreement. The Agreement was amended by the Agreements of June 26, 1956, June 11, 1960, and May 25, 1962, and supplemented by the Mutual Defence Purposes Agreement of May 22, 1959, and the Exchange of Notes of January 28 and 30, 1969, March 18 and 25, 1976, and November 15, 1977.

**Exportation of
Power and Fluids
and Importation
of Gas Act**

The Exportation of Power and Fluids and Importation of Gas Act was proclaimed on June 20, replacing the Electricity and Fluid Exportation Act as enacted in 1907. The revised Act provided specifically for the control of gas imports at a time when attempts were being made to promote an all-Canadian gas pipeline from Alberta to central Canada (see note for March 1954). The new Act also removed a provision in the previous Act which gave authority to impose export duties on gas, oil and other fluids, retaining only the right to place an export duty on exports of electric power.

**Westcoast
Transmission
Company gets
federal approval
to export gas**

On June 27, Westcoast Transmission Company Limited received federal government approval to export natural gas from Canada for a period of 20 years at a rate not to exceed 125 billion cubic feet in any 12-month period. The approval was given on the basis of a contract signed on December 11, 1954 with Pacific Northwest Pipeline Corporation and El Paso Natural Gas Company providing for the sale of natural gas by Westcoast to Pacific Northwest at the B.C.-U.S. border for 22 cents per thousand cubic feet. Westcoast had been incorporated by Special Act of the Parliament of Canada in 1949. Westcoast obtained a permit in June 1952 from the Alberta Petroleum and Natural Gas Conservation Board to remove gas from that Province and federal export approval in December 1953, and had also signed purchase contracts with gas producers in the B.C. Peace River. An essential part of the Westcoast pipeline project from the Peace River area of northwestern Alberta and northeastern B.C. to the B.C. lower mainland was the exportation of natural gas to the U.S. On June 18, 1954, following hearings before the U.S. Federal Power Commission which had been initiated in June 1952, the FPC denied Westcoast's U.S. affiliate an import permit, and a permit was granted to Pacific Northwest which proposed to transmit gas into Pacific Northwest States from New Mexico. On December 11, 1954, Westcoast signed the contract with Pacific Northwest at the price of 22 cents noted above.

Westcoast then got Canadian government approval in the form of a new export license to replace the one received in December 1953. This June 27, 1955 export licence granted by the Minister of Trade and Commerce, on the recommendation of the Board of Transport Commissioners, included approval of the 22-cent export price which became controversial because there was criticism that the Westcoast price of 32 cents in the Vancouver area was in effect subsidizing the export to the U.S. (See note for November 1955, the first two notes on the Royal Commission on Energy for October 1958 and the second note on the Commission for July 1959). The gas exported by Westcoast was to be used in the Pacific Northwest system in Washington and Oregon; and also by El Paso for delivery into the distribution system of Pacific Gas and Electric Company in San Francisco, California.

Northern Ontario
Pipeline Crown
Corporation
proposal for
Trans-Canada
project

In August, Trans-Canada agreed in principle to a federal government proposal that in order to complete financing arrangements for an all-Canadian route, a Crown corporation, (Northern Ontario Pipeline Crown Corporation), would be established to construct the uneconomic portion of the line. This was considered to be the section between the Manitoba border and Kapuskasing, Ontario, which would cost about \$118 million a little over one-third of the total sum needed for the whole pipeline enterprise. It seemed likely that the rest of the line across the Prairies and from central Ontario to Montreal could be financed privately. This would also accommodate the Trans-Canada - Tennessee exchange proposal, approved by the Canadian government in September 1955, whereby Trans-Canada would take delivery of 200 million cubic feet of gas daily at Niagara from Tennessee while delivering the same amount to the U.S. company at Emerson on the Manitoba border. The gas delivered to Trans-Canada at Niagara would be used to build up the central Canada market pending completion of the pipeline across Canada. On September 21, 1955, the Board of Transport Commissioners issued an order granting Trans-Canada leave to construct the Toronto-Montreal line and again extending the date of proof of ability to finance, this time from October 31, 1955 to April 30, 1956. The Alberta Petroleum and Natural Gas Conservation Board extended its gas removal permit to that date also. In April 1956, both dates were extended to November 1, 1956.

Trans-Canada
yields control
to U.S.
interests to
obtain pipe

On November 1 Trans-Canada PipeLines Company signed an agreement with Tennessee Gas Transmission Company and Canadian Gulf (controlled by Gulf Oil of the U.S.) whereby the two companies obtained an option on 50% of the shares of Trans-Canada's stock in exchange for an undertaking by Tennessee to place an order with U.S. Steel Inc. for \$40 million worth of large-diameter pipe. Because of the steel shortage in the United States, and the inability of Canadian steel plants to produce 34-inch pipe, the only way that pipe could be supplied in time for the 1956 construction season was to make a November 1, 1955 commitment. Trans-Canada had no resources to back such a commitment and support was not available within Canada. This yielding of control by Trans-Canada to American

companies for the period of the liability became a major factor in the "Great Pipeline Debate" that developed in Parliament in May 1956. By February 1956, U.S. control had been increased to 51%, with Tennessee Transmission, Gulf Oil, and Continental Oil each holding 17%, but this control was to cease after a public offering of shares when there would be an opportunity for Canadian ownership. The federal government remained committed to an all-Canadian route for the main line, and to commencement of construction in 1956.

Westcoast
Transmission
Company gas
pipeline gets
U.S. approval
-- export sales
called "bargain
of the century"

In November, the Federal Power Commission in Washington gave approval to the plans of Pacific Northwest Pipeline Corporation to import natural gas from the proposed Westcoast Transmission pipeline system in Canada. This decision permitted Westcoast to proceed with its \$162 million project of building a 650-mile 30-inch diameter gas pipeline from the Peace River area southward through B.C. to the international boundary at Huntington to connect with the Pacific Northwest system being constructed from the San Juan area of New Mexico. The dual projects would thus link the gas reserves of the Peace River and San Juan basin areas to markets in B.C., the U.S. Pacific Northwest, California, and the Rocky Mountain States. The Westcoast Transmission-Pacific Northwest project had been turned down by the Federal Power Commission in June 1954. Subsequent negotiations leading to the November 1955 approval involved the signing of an agreement whereby Westcoast would sell Pacific Northwest 300 million cubic feet of natural gas per day at the B.C.-Washington State border, 44 miles east of Vancouver, for 20 years at 22 cents per thousand cubic feet. This became known as the "bargain of the century". Westcoast also completed an arrangement to sell gas to B.C. Power Corporation for the Vancouver area at 32 cents per thousand cubic feet, equivalent to the price being paid by utilities in Pacific Northwest States. The Westcoast Transmission pipeline was completed in the fall of 1957. Purchase contracts with producers in the Peace River area provided for payments of 10 cents per thousand cubic feet escalating to a maximum of 12 1/2 cents. Considerable controversy surrounded the project with respect to its method of financing and the relationship between its export and Canadian pricing provisions. This became a major subject of the Royal Commission on Energy inquiry and its First Report of October 1958. (See also Royal Commission notes for October 1958 and July 1959).

THE YEAR 1956

Northern Ontario
Pipe Line Crown
Corporation
established to
help finance
Trans-Canada
gas pipeline

On March 15, the federal government introduced a resolution in Parliament providing for the constitution of the Northern Ontario Pipe Line Crown Corporation which would construct a pipeline between the Ontario-Manitoba border and Kapuskasing, Ontario, to thereby enable the financing of the Trans-Canada gas pipeline project across Canada. Provision was included to allow Trans-Canada to lease for not more than 25 years the pipeline with option to purchase. The resolution also provided for the Corporation to borrow money totalling not more than \$130 million. A bill to enable Ontario to participate in the Northern Ontario Pipe Line Crown Corporation had been passed in the Ontario legislative on February 22, 1956 which authorized a \$35 million loan. On March 28 the Board of Transport Commissioners gave an oral judgement moving the deadline of proof for financing from April 30 to November 1, 1956. However, Trans-Canada was still unable to arrange for the financing of the western section of its pipeline and on May 8, the Hon. C.D. Howe advised the House of Commons of the government's intention to advance a loan covering up to 90% of the \$80 million cost of the construction of the western section, at an interest rate of 5% for a short period. The company was unable to complete financing and proceed with construction because the Federal Power Commission in Washington had not yet approved the importation of Canadian gas at Emerson, Manitoba. If the company failed to repay the loan by April 1, 1957, the government would take over the whole system. The government remained committed to construct the western section in 1956, with a deadline approval date of June 7.

Uranium special
contract price
cancelled;
restrictions
lifted

Early in 1956 the federal government gave notice that after March 31, applications for special price contracts in the sale of uranium to Eldorado Mining and Refining Limited would not be received because sufficient uranium reserves had been developed (see note for December 1947). At this time, restrictions on the publication of data on uranium production and related matters were lifted.

Trans-Canada
line in
jeopardy because
of FPC gas
import approval
delays

In April, Trans-Canada Pipe Lines Limited advised the federal government that it had entered into contracts with its principal Canadian gas producers and consumers and complied with requirements of the Province of Alberta and the Board of Transport Commissioners but that, in the absence of approval by the U.S. Federal Power Commission (FPC) of the proposed importation of gas at Emerson, Manitoba, it could not finance its project, either by way of temporary bank advances pending public financing, or by way of permanent financing, notwithstanding the conditioned agreement of the federal government to build and lease the Northern Ontario section. This meant that Trans-Canada would be unable to commence construction in 1956 of the Western section (from Alberta to the Manitoba-Ontario border). Trans-Canada had at this time a November 1, 1955 agreement with Tennessee, under which Tennessee agreed to

purchase pipe in the tight U.S. steel market and assign purchase orders to Trans-Canada within 60 days after Tennessee had notified Trans-Canada that Federal Power Commission import permits had been authorized. In order to arrange for financing of the steel purchases, it was necessary for Trans-Canada not only to be in a position to export gas at Emerson but also to have continued in existence the agreement of the federal government to build and lease the Northern section of the line, and this agreement extended only to May 1, 1956. Failure to complete the steel purchase would mean a delay until the 1958 construction season, or later, and possibly put the all-Canadian route in jeopardy.

Trans-Canada Pipeline Debate

During May and continuing through until June 7, Parliamentary business was largely concerned with Trans-Canada pipeline matters in what came to be known as the "Great Pipeline Debate", considered at the time as the most tumultuous debate in the history of the House of Commons. On May 9, the Hon. C.D. Howe announced that the proposal for a short-term government loan to Trans-Canada had been accepted by Cabinet and would be debated in Parliament. The loan would be used to finance the western section of the pipeline as Trans-Canada was unable to arrange for financing (see notes for March and April 1956). On May 10, he introduced the resolution which would allow the Northern Ontario Pipe Line Crown Corporation to make short-term loans to Trans-Canada for the western section to Winnipeg, with the loans not to exceed \$80 million or 90% of the cost of construction, whichever was the lesser. On May 25, the Company received Board of Transport Commissioners approval to construct the western section. On May 14, the federal government gave notice in the House of Commons of its intention to impose closure on Bill 298, to provide loans to Trans-Canada, before debate on it had commenced. Closure would be invoked at each stage of the debate. At most, there were 19 days left for debate in the House and Senate before the June 7 deadline that had to be met if construction was to proceed in 1956. After tumultuous debate, particularly because the government was prepared to make a loan to what was then a U.S.-controlled company, the Bill received third reading in the House of Commons in the early morning of June 6, followed by debate in the Senate and Royal Assent on June 7. This allowed the project to proceed on schedule. A strike in the steel industry resulted in shortages of pipe and only about 230 miles of the total 575 miles had been laid by the end of the 1956 construction season but by legal recognition of the existence of "force majeure", incident to the steel strike, the obligation to meet the deadline was suspended. During 1956, Trans-Canada signed gas sales contracts with five large distributing companies in Manitoba, Ontario and Quebec.

Suez Canal crisis, 1956

In June, Egypt announced nationalization of the Suez Canal which had been built by France in 1869 and largely run by British and French interests. When British and French air forces attacked Egyptian installations early

in November, Egypt blocked the Canal entrance by scuttled ships. Subsequently, Canada proposed a UN peacekeeping force which was moved into Port Said on November 21. Although the Canal was re-opened in early 1957, the incident caused a rapid increase in oil tanker rates in 1956, and the threatened world oil supply shortage led to a surge in export demand for Canadian oil. By the latter part of 1957, international oil supply had returned to normal and Canadian oil exports were beginning to decline. The extent of shut-in capacity in the western Canada oil industry in 1957 was one factor in the federal government's decision to establish the Royal Commission on Energy in October 1957. The 1956 Suez crisis highlighted the increasing importance of Middle East oil reserves which, at the time of the crisis, constituted two thirds of the world's oil reserves, including the USSR, compared with one third in 1946.

Atomic Energy
Control Act -
Pronto case
upholds federal
jurisdiction
confirmed in
1972

The constitutionality of the Atomic Energy Control Act and the comprehensive regulations made under the Act were challenged in the Supreme Court of Ontario in *Pronto Uranium Mines Limited vs. the Ontario Labour Relations Board, et al* (1956) C.R. 862, where the question was whether the Ontario Labour Relations Board or the Canada Labour Relations Board had jurisdiction to certify a bargaining agent for employees of companies engaged in the mining and concentrating of uranium ore. In a judgement of August 13, 1956, which was not appealed, the judge decided in favour of the validity of the Atomic Energy Control Act and the regulations made under it. In this ruling, the judge said: "In this day it cannot be said that the control of atomic energy was merely of local or provincial concern, and in my opinion it is a matter which from its inherent nature is of concern to the nation as a whole and that the Act and the regulations are within the powers of Parliament to make laws for Peace, Order and good Government of Canada". Thus the production of the raw materials for developing atomic energy was within the legislative authority of the federal Parliament and the labour relations involved in the production of uranium were found to be within federal and not provincial law. A second case, *Denison Mines Ltd. vs. the Attorney General of Canada*, heard on December 18, 1972, again confirmed that Parliament had the powers to pass laws for the control of atomic energy.

AECB Advisory
Committees -
RSAC, ASAC,
NREC, etc.

In August, a part-time Reactor Safety Advisory Committee (RSAC) concerned with health and safety and consisting of federal, provincial and university experts, was inaugurated by the Atomic Energy Control Board (AECB) to assess applications for reactor licences and provide advice to the Board. Early in 1957, the AECB issued a Nuclear Reactor Order requiring a Board order of approval prior to reactor construction and operation. The National Research Council (NRC) had used advisory committees in its work as far back as 1917. In 1962, the AECB also established an Accelerator Safety Advisory Committee; a Nuclear Reactors Examination Committee in 1966; and an AECB/NRC Visiting Committee, to study the use of AECB research funds, in 1967. These and other part-time

Advisory Committees continued to function until the late 1970s when a decision was taken to abolish many of them and to replace them by a small number of Advisory Groups specializing in generic areas of the Board's jurisdiction, such as radiological protection, nuclear safety and security. With the enlargement of the Board's highly qualified staff in the 1970s, it provided advice on licensing matters while the new Advisory Groups directed their attention to broader scientific and technical policy questions (see note for April 1979).

CANDU fuel
bundles -
research and
development

In September, the Mines Branch of the Department of Mines and Technical Surveys (now EMR) published the results of its laboratory research on the use of uranium dioxide (UO_2) rather than uranium metal for nuclear reactors, in a report "Factors Affecting the Sintering Properties of Uranium Dioxide for Use in Reactor Fuel Elements". Uranium dioxide powder, prepared from yellowcake (U_3O_8) produced in the uranium refining process, can be pressed into cylindrical pellets and sintered in hydrogen. The pellets can be ground to fine tolerances to fit into a zircaloy sheath. The oxide pellets sealed into a zircaloy tube afforded a means of avoiding design defects that would develop in the use of uranium fuel in the form of metal encased in aluminum or steel in a high-pressure, high temperature environment. Use of an alloy of zirconium as cladding for the fuel elements keeps the uranium out of contact with water, and use of uranium oxide pellets avoids the problem of swelling which uranium metal undergoes at temperatures of 1200°F and higher which would rupture the cladding. Following the research on uranium dioxide in the Mines Branch (now CANMET), subsequent development of the CANDU fuel bundles containing the sintered pellets was carried out mainly in AECL's Chalk River laboratories. Canadian General Electric, Westinghouse Canada Ltd. and Combustion Engineering Ltd. have fabricated all of the fuel bundles for Canada's domestic nuclear program and much of its overseas programs.

IAEA established
- nuclear
safeguards
introduced

In October the statute of the International Atomic Energy Agency (IAEA) was signed and came into effect in July 1957. This followed the unanimous adoption in the U.N. General Assembly in late 1954 of a resolution for the establishment of the IAEA, and subsequent negotiations leading to the objectives of seeking "to accelerate and enlarge the contribution of Atomic Energy to peace, health and prosperity throughout the world". Article III A.5 of the statute calls for the establishment and administration of safeguards to ensure that "special fissionable and other materials, devices, equipment and facilities and information made available by the Agency or at its request or under its supervision or control are not used in such a way as to further any military purpose; and to apply safeguards, at the request of parties, to any bilateral or multilateral arrangement, or at the request of a state, to any of that state's activities in the field of atomic energy". A staff of inspectors was set up by the IAEA and, by 1968, it was administering safeguard agreements with about 28 countries.

Oil production
trends - oil
field
development

The oil production record for 1956 through to December showed that the three leading Alberta fields - Pembina, Redwater, and Leduc-Woodbend - had accounted for 58% of the Province's production, with the remainder coming from 83 other fields. The Pembina field, discovered in 1953, became the largest of the Alberta fields in 1956. British Columbia's first oil field was developed during the year in the Peace River area following initial discovery in 1955. Saskatchewan's production doubled in 1956 as a result of successful oil reserve development in the southeast corner of the Province. The small oil fields of Manitoba had been developed around the town of Virden in the southwest corner of the Province. In 1956, Alberta accounted for 83.5% of Canada's crude oil production of 172 million barrels; Saskatchewan, 12%; Manitoba, 3% and the remaining 1.5% came from Ontario, B.C., the N.W.T. and New Brunswick. In 1946, the year prior to the Leduc oil discovery, the country's crude oil production amounted to 7.2 million barrels. The oil development trends noted above, and the accompanying market expansion, thus accounted for almost a 24-fold increase in production, to 171 million barrels in 1956.

THE YEAR 1957

Trans-Canada
pipeline
financing
completed and
construction
proceeds - Crown
Corporation
section
purchased in
1963 by
Trans-Canada

On January 31, Trans-Canada Pipe Lines Limited was able to show the Board of Transport Commissioners that financing the Trans-Canada gas pipeline was assured. The company had proceeded with construction of the western section on the basis of a short-term government loan (see May 1956 note). In its January 31 statement to the Board, Trans-Canada detailed the financial arrangements it had completed with Canadian and U.S. institutional and other investors totalling \$252 million. In addition, the Ontario Pipe Line Crown Corporation was scheduled to spend \$120 million on the northern Ontario section, indicating a total expenditure for the system of \$372 million. The line was completed to Winnipeg in September 1957 and to the Montreal area in October of 1958, with a lateral line from Morrisburg to Ottawa also in that year. By the end of February 1957, Trans-Canada was able to repay, with interest, the loan it had received from the Crown Corporation for the western section. The loan, with interest and related expenses, amounted to \$50.7 million. The successful financing had included active participation by small investors throughout Canada, at the time of public financing in February. Proceedings before the U.S. Federal Power Commission to permit imports of Trans-Canada gas at Emerson, Manitoba, were not completed until 1960. By 1963, Trans-Canada was able to purchase the section owned by the Northern Ontario Pipe Line Crown Corporation leaving the entire pipeline project in the hands of a viable private enterprise but subject to regulation by the National Energy Board after it was established in 1959.

Coal exports to
Japan increased
- assisted by
transportation
subventions

Canadian coal exports to Japan were resumed, effective January following a period of four years when no shipments were made. Federal government assistance in the form of an increase in the export coal subvention from \$1.00 to \$2.25 a ton, followed by further increases to \$4.50 in the period April 1959 to April 1962, resulted in export shipments in 1963 of 700,000 metric tons. By 1965-66 the subvention rate was reduced to \$2.79 following improved market prices and reduced costs. Exports were then approaching the one million ton a year level. Authority was given to continue subvention payments until March 31, 1970. In that year, exports to Japan totalled 3.7 million metric tons. Subsequently, they rose to 10.8 million tons in 1975 and remained at that general level during the remainder of the 1970s, being 10.4 million tons in 1980.

Progress towards
oil self-
sufficiency
following the
Leduc oil
discovery

The record available in February, ten years after the 1947 Leduc oil discovery, revealed a rapid growth in the Canadian oil economy. Although oil demand in the intervening period increased by 3.3 times to 720,000 barrels per day, the large increase in domestic oil production enabled Canada to improve its oil self-sufficiency position from less than 10% to over 65%. The rate of growth was not as rapid in subsequent years, and Canada did not become self-sufficient in oil until 1970 (see also note for February 1947).

Diefenbaker 1957
statement on
foreign
investment and
a national
energy board

In a debate in the House of Commons on February 11, at a time when matters concerning foreign investment and control had been a focal point in proceedings of the Royal Commission on Canada's Economic Prospects (see note below for March) and in the Trans-Canada Pipeline debate (see note for May-June 1956), John Diefenbaker, then leader of the official opposition, in a speech on national development policy, criticized "not American investment in Canada but the degree to which the investment in Canada by foreign corporations was uncontrolled for the benefit of Canada", and advocated "a plan; not a planned economy but a national policy; not a policy of nationalism but one whereby Canada in the days ahead will remain an independent Canada and will not inexorably drift into economic continentalism". He had endorsed the Royal Commission on Canada's Economic Prospects recommendation for a national energy authority and, after coming to power in June 1957, his government appointed the Royal Commission on Energy to, among other matters, "make recommendations concerning the extent of authority that might best be conferred on a National Energy Board...", and to enquire into a number of national energy policy matters.

Canada establishes
nuclear
safeguards
pending the NPT
and IAEA
inspection

In February, the Government of Canada announced that it would be prepared to negotiate bilateral agreements with countries wishing to purchase Canadian nuclear equipment and materials. Subsequently, a draft agreement was prepared and the first country to sign it was West Germany in December 1957 followed by eight other countries by the mid-1960s. This bilateral safeguards arrangement was initiated prior to the coming into effect in July 1957 of the International Atomic Energy Agency (IAEA) statute and the eventual safeguards administration by the IAEA. After Canada's commitment to the Non-Proliferation Treaty in 1968 (the Treaty came into force on March 5, 1970), Canada increasingly relied on the effectiveness of the NPT to ensure that its signatories would use Canadian uranium and other nuclear supplies for peaceful purposes only, and during the 1970s, the IAEA took over the role of inspection and verification that Canada had initiated in 1957 under its bilateral agreements.

Royal Commission
on Canada's
Economic
Prospects
(Gordon
Commission)

In March, the Royal Commission on Canada's Economic Prospects completed its report "Canadian Energy Prospects" which became the basis for the Commission's observations and recommendations concerning energy. The Commission called for the development of a comprehensive energy policy, the establishment of a national energy authority with advisory and regulatory powers, and the regulation of energy exports. The Commission expressed concern about the implications of foreign domination of the petroleum industry and recommended greater reliance on foreign capital in the form of bonds or mortgages; a minimum 20-25% Canadian ownership of companies operating in Canada; the appointment of independent Canadians to the subsidiaries' board of directors; greater use by foreign firms of Canadian engineering, professionals, and service personnel; more Canadian sourcing of supplies, materials, and

equipment; and the requirement of Canadian participation in future oil and gas exploration permits and leases. The supporting study, "Canadian Energy Prospects", provided factual information concerning the changing market for energy, and explored the possibilities which further development of Canada's fuel and power resources held for the rest of the economy over the succeeding 25 years. It examined energy consumption in relation to economic growth and provided detailed assessments of supply-demand trends for each of the energy commodities in the period 1955-1980. The Commission was optimistic about the growth prospects of the oil and gas industry, but pessimistic about reducing its high level of foreign ownership which was decreasing the decision-making power of Canadian companies. It was particularly critical of the influence U.S. companies had on the setting of prices of gas exports to Montana in 1951 (see note for March 1951) and in the Westcoast Transmission export arrangement (see note for June 1955). The matter of greater Canadian content and participation received attention in the EMR policy report of 1973, "An Energy Policy for Canada" and the 1976 report "An Energy Strategy for Canada", but it was not until 1978 when the Petroleum Corporations Monitoring Act was passed that legislative initiatives were taken to monitor foreign investment and earnings in the Canadian petroleum industry. This was followed in 1980 by the National Energy Program with a number of measures directed to promoting greater Canadian participation in the energy economy.

**Trans-Canada
pipeline leads
to government
defeat in 1957
election, and to
Royal Commission
on Energy**

On June 12, 1957, the Liberal government was defeated at the polls after 22 years in power, with events associated with the Trans-Canada project having contributed to the result of the election. In addition to pipeline developments in 1956, including the Pipeline Debate in the House of Commons in May and June, the stock options issued to Trans-Canada's chief officers, the President and the Vice President, when they were engaged in 1954, led to considerable further controversy in early 1957. The options were exercised at the time of public financing with the price rising as high as \$20 a share. The options had been given at \$8 in 1954 when the stock was worth very little. This, and related matters, became the subject of debate in the House of Commons in the weeks prior to the dissolution of Parliament and the calling of an election. After the new government assumed office, Prime Minister Diefenbaker appointed the Royal Commission on Energy on October 15, 1957 to, among other matters, look into the affairs of Trans-Canada Pipe Lines Limited and Westcoast Transmission Company Limited (see two notes for October 1958). The manner of financing the Trans-Canada gas pipeline project and the possible threat to future Canadian requirements posed by the export component of the project were matters to be included in the Commission's review.

**Atomic Energy
of Canada Ltd.
- progress note**

Work of Atomic Energy of Canada Limited (AECL) is reported in detail in its annual reports. The report tabled in the House of Commons on October 15, 1957 provides a record of the planning and program development that had got underway since the establishment of the Crown

corporation in 1952 (see AECL note for October 1952 and various CANDU notes). The development of economic nuclear power was proceeding in three areas of activity: fundamental research, applied research, and the design, construction and operation of demonstration nuclear plants. Those activities had the common objective of the development of a power reactor technology based on the use of natural uranium as a fuel and heavy water as a moderator - the technology which Canada successfully pioneered with the NRX reactor. In 1957, Canada had two power reactor projects underway: the design and construction of a demonstration power reactor called the NPD at Rolphton, Ontario with an output of 20,000 kilowatts, and a design study for a power reactor with an output of 200,000 kilowatts. The NDP had its start-up in 1962, and the Douglas Point Nuclear Generation Station in November 1966 with its first production of electricity on January 7, 1967. NPD was built by AECL in cooperation with Ontario Hydro and Canadian General Electric. The Douglas Point Station was undertaken as a joint venture by AECL and Ontario Hydro.

**Chalk River
NRU reactor
in operation**

On November 3, a new reactor to produce plutonium went into operation at Chalk River. It had been approved by an Order in Council of December 20, 1950 after extensive negotiations with the U.S. and U.K. governments and planning within Canada. The new reactor was designed to produce 55 kgs of plutonium per annum which along with 5 kgs from the NRX reactor, operational in 1947, would be sold to the U.S. Atomic Energy Commission for \$171,600 per kg. to yield \$10 million in revenue per annum. The new reactor, NRU, proved very successful, and maintained Canada's lead in the field of research reactors that had begun with NRX in 1947.

**Pipeline explosion
leads to new
CSA standards**

During the testing of a final section of newly-constructed pipeline in the Trans-Canada Pipe Lines system near Dryden, Ontario, on December 24, an explosion took place which resulted in a three and one half mile break in the line, the longest pipeline break in history. The damaged section was replaced and the line completed and tested to enable gas to be delivered into Port Arthur on schedule by year-end. The incident led to the development by the NEB, the Canadian Standards Association and industry of new pipeline specifications more suited to climate and terrain conditions in Canada.

**Coal exports to
Japan on a
continuing
basis**

In December coal shipments to Japan for the year totalling 27,194 metric tons were completed and this marked the first year of continuing and generally increasing coal exports from western Canada to what became the country's most important coal export market. There had been a record of coal exports to Japan in 1948, 1949, 1951 and 1952. Commencing the continuing export business in 1957, the western Canada coal industry increased its sales to 10.8 million tons in 1975, remaining near that level in the remaining years of the 1970s. The first major export contract was signed in 1968 providing for the delivery of 40.8 million tons of coal to Japan over a period of 15 years. By 1975, coal exports, mostly to Japan, were

accounting for almost one half of Canada's production. Technical coal missions to Japan were important factors in this trade development, the first having taken place in 1960, the second in 1972, followed by more frequent technical exchange and trade promotion visits in the 1970s and 1980s.

A 1957 perspective
on oil industry
growth -
post-war boom
at peak

The record through to December showed that the share of oil in the Canadian energy market in 1957 was over 50% compared with 25% in 1946, the year prior to the Leduc oil discovery. The intervening period was one of considerable growth in the Canadian oil industry, with production increasing from 20,000 barrels a day in 1946 to 505,000 barrels a day in 1957. The main stimulants to the growth of the industry were two-fold. There was a growth in the Canadian economy itself. As measured in constant 1957 dollars, the average growth in the GNP in the period 1946-1957 was 4.3% per annum. Of equal importance was the penetration achieved by oil into the total energy market in Canada and the accompanying growth in oil exports. In the domestic market, the average annual rate of petroleum demand growth was over 11%. Starting in 1954, and later responding to the Suez oil crisis of 1956, substantial volumes of Canadian crude oil and natural gas liquids (NGLS) moved into the U.S. export market, totalling about 152,600 b/d in 1957 compared with 40,600 b/d in 1955. A network of oil pipelines had been put in place and petroleum refinery capacity trippled to 762,000 b/d by 1957. The Suez crisis in 1956 created some over-expansion of the oil industry in Canada but the resolution of that crisis and the peaking out in 1957 of the resource-oriented boom of the post-war years led to a marked decline in oil industry activity. Exploration tapered off, oil exports in 1958 declined by 43% from the previous year, and there was increasing shut-in capacity in Western Canada oilfields.

THE YEAR 1958

Atlantic Provinces
Power
Development
Act

The Atlantic Provinces Power Development Act was assented to on January 31. The Act provided assistance in two ways: by subvention payments on the cost of Maritime coal used in power generation; and by long term loans to Maritime utilities, at interest rates equal to the rates applicable to advances to federal Crown corporations, for construction of thermal power plants and interconnecting transmission lines. The coal subvention assistance was terminated in May 1969 and the loan component in December 1969.

Uranium exports
under U.S. and
U.K. contracts

In a statement made in the House of Commons on February 1, the Minister of Trade and Commerce reported that since March 1948 when Eldorado Mining and Refining Limited was designated by the federal government as the sole purchaser of uranium produced in Canada, the company had entered into purchase contracts with 16 companies and had entered into matching sales contracts with a total value of \$1,425,723,000. In addition, Eldorado had entered into sales contracts covering production from its own mines, the contracts having a total value of \$211 million. The bulk of the uranium produced under these contracts was scheduled to be delivered to the United States Atomic Energy Commission (USAEC). In 1956, the United Kingdom had expressed an interest in Canadian uranium and on March 26, 1957 announcement was made of a contract between Canada and U.K. Atomic Energy Authority valued at \$115 million with deliveries to be made over a period extending to March 31, 1962. The announcement of February 1, 1958 advised that additional quantities of uranium valued at \$105 million would be sold to the U.K. in the period April 1, 1962 - March 31, 1963. Further U.K. contract arrangements were announced in July 1962.

Royal Commission
on Energy -
Alberta's
jurisdictional
views on
natural gas
allocation
and pricing

During the proceedings of the Royal Commission on Energy in the period 1958-59, a number of views were expressed concerning the jurisdiction of a province producing natural gas. In a brief presented to the Commission in April 1958, Premier Manning of Alberta expressed the following views relative to the authority of the province in natural gas market allocation, indicating that the authority of a National Energy Board should be restricted to interprovincial pipeline jurisdiction:

"In the disposition of gas, our policy has been and will continue to be to ensure an adequate supply to meet the present and future requirements of Alberta before we approve export to markets outside the province. To this end, the Oil and Gas Resources Preservation Acts of 1949 and 1956 were enacted and the Oil and Gas Conservation Board is charged with the responsibility of determining the quantity of gas necessary to meet the present and future requirements of the province and to approve the export only of that gas which is surplus to those requirements."

"Turning to the second phase of the subject under consideration, namely, the disposition of gas which is surplus to Alberta's requirements, I already have indicated our general concurrence with the federal policy that such gas should first be available to other Canadian markets as far as geographic factors and sound, economic principles make the supply of such markets feasible. This means, in effect, that other Canadian markets should be given priority over foreign markets but only under terms and condition which are fair and equitable to all concerned. We cannot concur in any policy that arbitrarily would restrict Alberta gas to Canadian markets at the expense of the producing companies which incur the risk and cost of development or at the expense of the people of Alberta who collectively are the owners of the gas".

These and other Alberta government statements to the Royal Commission defined Alberta's position in the late 1950s that if a significantly greater return to the producer from sales of gas in an export market compared with sales in a Canadian market was indicated, the Government of Alberta would favour the export market in natural gas allocation, notwithstanding future market requirements of other areas of Canada. Furthermore, no federal authority should be empowered to regulate natural gas production, or prices at the wellhead or at the ultimate consumer level.

Law of the Sea
Convention of
1958, ratified
in 1970

On April 13, the 1958 Geneva Convention on the Territorial Sea and Contiguous Zone was signed. This United Nations convention on the Continental Shelf was ratified by Canada effective March 8, 1970. It provides that the coastal State "... exercises over the continental shelf sovereign rights for the purpose of exploring it and exploiting its natural resources" (Article 2.1). The Convention defines the continental shelf as extending "... to a depth of 200 metres or, beyond that limit, to where the depth of the superjacent waters admits of the exploitation of the natural resources..." (Article 1). The Convention further provides that the sovereign rights referred to in Article 2 are exclusive and "do not depend on occupation, effective or notional, or on any express proclamation". (Article 2.2, 2.3). Under the Continental Shelf Convention definition, the outer limits of national jurisdiction are dependent on the exploitability test. Because much of Canada's shelf lies at water depths considerably greater than 200 metres, the exploitability criterion of the Convention is of great importance. Canada's position has always been that the country's juridical continental shelf extends out to the continental margin, which includes the shelf proper, and the continental slope and rise beyond.

Royal Commission
on Energy -
Alberta position
on oil pipeline
to Montreal

During the proceedings of the Royal Commission on Energy, the Government of Alberta strongly supported the option of extending the Interprovincial Pipe Line to Montreal to open up further markets for western Canada crude oil and thereby solve the oilfield shut-in capacity problem in Alberta. Much of the hearing process for the Second Report of the Commission, as completed in July 1959, was concerned with this marketing issue. The views of the Premier of Alberta on the issue were expressed on a number

of occasions to the Commission including a brief submitted in May 1958 when he expressed the opinion that the serious oil marketing problems then confronting the oil industry warranted pressing the federal government in terms of the following resolution: "failing a satisfactory solution to this problem (of oil shut-in capacity) within the prescribed time, it is the intention of the Government of Canada to impose import quotas on crude oil and refined products to the extent necessary to make economically available the construction and operation of a pipeline to transport crude oil from western Canada to the Montreal refining area". The marketing situation subsequently improved and the Premier did not press his proposal. In its July 1959 report the Royal Commission advised against a Montreal pipeline until the alternatives of filling out the domestic market to the Ottawa Valley line and promoting further exports had been fully tested. The Montreal pipeline was not constructed until June 1976.

Royal Commission
on Energy -
Saskatchewan
views on
pipeline
jurisdiction,
and subsequent
federal practice

During the proceedings of the Royal Commission on Energy, there was considerable debate on the issue of pipeline jurisdiction, with the Saskatchewan government, among others, expressing considerable concern about provincial rights in view of the history of the Westspur Pipe Line Company case in which the Board of Transport Commissioners ruled on December 5, 1957 that the gathering system of this Special Act federal company could not be transferred to a pipeline company incorporated in Saskatchewan even though all of the gathering facilities connected to the interprovincial Westspur system were within the Province. In a June 1958 submission and other submissions to the Royal Commission, the Saskatchewan Minister of Natural Resources expressed views regarding the vulnerability of provincial jurisdiction over oil and gas resources in relation to the pipeline jurisdictional issue, which became a major preoccupation of the Commission in proposing powers and responsibilities for a National Energy Board. In the years following the establishment of the National Energy Board in 1959, a constitutional issue was avoided through the Board's practice of not issuing a gathering system permit to a federally-incorporated pipeline company until the provincial government concerned had been consulted as to the effect of that system on the province's oil and gas policies. In the 1960s, legal authorities expressing opinions, as recorded in such journals as the Canadian Bar Review and the Alberta Bar Review, on the role of the Natural Energy Board generally concluded that by the rule of Paramountcy, federal jurisdiction could be extended into the field of provincial oil and gas legislation. However, even with the passing of the federal Petroleum Administration Act in June 1975, price setting and related jurisdictional issues were settled through negotiation with the provinces.

Royal Commission
on Energy
(Borden
Commission) -
First Report
1958

The Royal Commission on Energy (Borden Commission) was established by Order in Council P.C. 1957-1386 of October 15, 1957 to enquire into and make recommendations concerning: "the policies which will best serve the national interest in relation to the export of energy and sources of energy from Canada; the problems

involved in, and the policies, which ought to be applied to, the regulation of the transmission of oil and natural gas between provinces or from Canada to another country...; the extent of authority that might best be conferred on a National Energy Board...;" and other related matters considered necessary by the Commissioners to include in their report. In its First Report, dated October 22, the Commission made recommendations related to considerations affecting the granting of licences for the export of natural gas surplus to Canadian requirements; the regulation of oil and gas pipeline companies; and relative to the establishment of a National Energy Board. The Commission also made recommendations concerning a gas export contract signed by Westcoast Transmission Company Limited on December 11, 1954, calling for a review of that contract (22¢/Mcf export price) before approving any further licences for export to ensure that the aggregate of gas to be exported by Westcoast could provide for an average export price that was fair and reasonable. The First Report contained detailed recommendations concerning the establishment of a National Energy Board. It recommended that legislation be enacted to enable the Government of Canada to exercise effective control over the export from, and the import into, Canada and the movement across provincial boundaries of all energy and sources of energy. It further recommended that a National Energy Board be established by this enabling legislation as a permanent board to study and to recommend to the Governor in Council policies designed to assure the people of Canada of the best use of the energy and sources of energy in Canada (see notes for July and November 1959 relative to the Commission's Second Report and the National Energy Board).

Royal Commission
on Energy -
First Report
recommendations
re Trans-Canada
and Westcoast
Transmission

In its First Report to the federal government in October, the Royal Commission on Energy included the results of its examination of the Affairs of Trans-Canada Pipe Line Limited (see June 1957 and other notes on Trans-Canada). The Royal Commission exonerated the Company on all matters but one. It concluded, in relation to the fact that the two senior officials of the Company had been given management contracts assuring their salaries for five years, that "the government of Canada should have insisted, as a condition of financial assistance, that steps be taken as would preclude them from reaping large capital profits from the purchase of shares in a company by which they were employed and which was being financed, in an essential part and at a critical time, with public funds". All other aspects of the financing of the project received the approval of the Commission, including the Northern Ontario Pipe Line Crown Corporation and its relationship to Trans-Canada, as well as the terms of the loan that had been made and repaid. The Commission stated further that if the government had not acted as it did in the spring of 1956 "construction on the western section of the line by Trans-Canada would have been indefinitely delayed". The Royal Commission also reported on Westcoast Transmission Company, calling for a review of its 22 cents per thousand cubic feet gas export contract signed with Pacific Northwest Pipeline Corporation on December 11, 1954. The Commission further recommended that future

regulation of the Company's domestic sales and export operations should ensure that the return on the shareholders' investment in Westcoast does not "result in Canadian consumers of natural gas contributing more than their fair, reasonable and proportionate share of the total return".

Royal Commission
on Energy
recommends oil
pipeline
regulation

In its First Report, released in October, the Royal Commission on Energy recommended that oil pipeline companies, subject to the jurisdiction of Parliament, should be regulated with respect to traffic, tolls or tariffs to ensure that they are just and reasonable, non-discriminatory and calculated to yield a fair rate of return on the shareholders' equity. Such regulation would be effected without the necessity for a pipeline company to be declared a common carrier. The Commission took this position because transportation charges constitute a material element of cost in crude oil supply and can materially affect the price to producers of crude and the price to consumers of refined products as well as the competitive position of Canadian crude oil in export markets. The recommendation for pipeline regulation was accepted and incorporated in the National Energy Board Act (see NEB note for November 1959).

Trans-Canada,
and Westcoast
Transmission gas
pipeline systems
in operation

In October, Trans-Canada Pipe Lines Limited completed its gas pipeline from the Alberta border to Montreal, a distance of 2290 miles, and commenced gas deliveries to eastern markets. Westcoast Transmission Company Limited, which had completed its gas pipeline to the west coast and commenced gas deliveries late in 1957, recorded its first full year of operation in 1958. As a result of the construction of these two major pipeline systems and the related gas gathering and distribution systems, total gas pipeline mileage in Canada at the end of 1958 amounted to 27,240 miles compared with 8,060 miles at the end of 1953 when both systems were still in the planning stages.

Springhill coal
mine disaster

A coal mine explosion at Springhill, Nova Scotia trapped 174 miners on October 23. By November 1, 100 miners were rescued but the remaining 74 died underground. This was one of the worst coal mine disasters in the history of Nova Scotia coal mining and attracted wide publicity at a time when the Province's coal industry was in serious decline.

Polar Continental
Shelf Project
established

The Polar Continental Shelf Project (PCSP) was established in the federal Department of Mines and Technical Surveys, effective December 1. Among the responsibilities of the organization in that Department and in the successor Department of Energy, Mines and Resources have been studies of paleoclimate and climatology of the Arctic Islands, and the modelling of glacier flow and temperatures of past and present ice sheets. The PCSP also coordinates and provides support to scientific research groups working in the Arctic Islands and the Arctic Ocean. Facilities at Tuktoyaktuk in the Mackenzie Delta and at Resolute Bay on Cornwallis Island provide logistical

support between mid-February and October each year. Aircraft, equipment, communications and base camp support are provided to research groups carrying out studies in a wide variety of disciplines ranging from archeology to zoology. The PCSP programs have served to extend Canada's sovereignty in the High Arctic, one of the original objectives of the Project when it was established in 1958. The announcement of the formation of the PCSP included the following statement: "The world today is standing on the threshold of the Arctic era. By fixing its sights on Arctic research, Canada will take its rightful place among the nations whose interest lies in the north polar regions". The PCSP has provided important scientific and logistical support services for oil and gas exploration in the High Arctic.

THE YEAR 1959

Columbia River
Treaty -
principles
to be applied

On January 29, the governments of Canada and the U.S. sent identical letters to the International Joint Commission (IJC) asking it to report its recommendations concerning the principles to be applied in determining benefits which would result from cooperative use of storage of waters and electrical interconnection within the Columbia River system, and in determining apportionment between the two countries of such benefits, more particularly in regard to electrical generation and flood control. Very little had taken place with respect to negotiations on the joint development of Columbia River power since March 1944 when the Columbia River Reference, proposed by the U.S. and agreed to by Canada, was transmitted to the IJC. This Reference called for studies of the entire Columbia River basin to "determine whether a greater use than is now being made of the waters of the Columbia River system would be feasible and advantageous".

Columbia River
Engineering
Board report
on plans for
development

On March 1, the International Joint Commission (IJC) received a report prepared by the International Columbia River Engineering Board entitled "Water Resources of the Columbia River Basin". This report presented three plans of development of almost equal merit. The report received wide distribution but the IJC did not act on the March 1944 Reference (see January 1959 note) at this time, but reported later in the year (see note for December).

Pricing method
changed from
Sarnia basing
point to
overseas crude
oil prices

In March, oil field prices in western Canada were reduced in response to reductions that had taken place in February in Venezuelan and Middle East crude oil prices. This was the first occasion in the experience of the Canadian industry when field prices were reduced in direct response to changes in the prices of overseas crude as distinct from that of United States crude. Previously, field prices had been set in terms of a netback from Sarnia, with the laid-down competitive price in that Ontario refinery centre being determined by the calculated price of Illinois crude delivered to Sarnia. The March 1959 Alberta oil field reduction to \$2.42 per barrel from the previous price of \$2.56, as set in April 1958 in terms of Illinois prices, marked a distinct break in the historic price relationship between Canadian and U.S. crudes. The price of Canadian crude henceforth became associated with and dependent upon the price at which overseas crude or product, or Montreal-based products, might be laid down in the Toronto area. The change from the Sarnia basing point meant that the oil producing industry became more subject than before to the forces of international competition.

Oil sands -
proposed nuclear
mining device

In April, a 9-man technical committee was appointed by the Minister of Mines and Technical Surveys to inquire into the feasibility of using nuclear energy for oil recovery from the Athabasca oil sands of northeastern Alberta. The committee considered a proposal by Richfield Oil Corporation whereby a nuclear device would be detonated

at a depth of about 1200 feet in an oil sands lease held by the company. The oil sands cover an area of about 17,000 square miles and contain an estimated 300 billion barrels of oil but only about 2 per cent of the sands are exposed to the surface. The bulk of this oil resource is covered by an overburden and cannot be readily exploited by known mining methods. Although a controlled nuclear explosion was considered to have some possibilities in preparing underground oil sands deposits for recovery, the federal government decided against the use of a nuclear procedure because of its commitment to international safeguards controls.

National energy
policy - views
in 1959 as to
need for more
effective
administration

Following the release in October 1958 of the First Report of the Royal Commission on Energy and during its proceedings leading to its Second Report in July 1959, there was considerable debate on various occasions in Parliament concerning the need for a national energy policy to deal with the country's energy resources in the best national interest. Representative of those deliberations were debates in the House of Commons in May 1959. While there was a range of views as to the extent of government involvement required, there was a general consensus that there was need of more effective administrative machinery to manage the country's energy resources. There was considerable agreement on the need for more coordination of energy policy initiatives although some difference in views as to whether there should be a division of energy authority, with policy making and related advisory functions being separate and distinct from regulatory functions. When the National Energy Board was established in late 1959 with extensive regulatory responsibilities it was also given policy advisory responsibilities. In 1966 when the Department of Energy, Mines and Resources was given the government's primary energy policy coordination function in support of the Minister, the National Energy Board energy advisory function was retained.

U.S. overland
quota exemption
for Canadian
oil exports
- some
restriction
remains

Effective June 1, crude oil, unfinished oils and petroleum products entering the U.S. by pipeline, motor carrier or rail were exempt from quotas in accordance with U.S. Presidential Proclamation of April 30, 1959, as amended. Canada was thereby exempted from the system of mandatory oil import controls, which had become effective on March 11, because most of its exports to the U.S. were transported by pipeline. During the period July 1957 to May 1959 when Canadian crude oil exports were subject initially to voluntary import controls and, for a short period, to mandatory controls, exports from Canada declined to the extent that, by April 1959, when the exemption by U.S. Presidential Proclamation was announced, they were no higher than the level which had been reached in late 1955, just before the Suez crisis threatened world oil supply. While the exemption which became effective in June 1959 removed formal import limitations on Canadian crude, it still had to gain entry to the U.S. market by establishing itself as a preferred source of supply to the individual U.S. importer over competing oils. Even where Canadian oil had a cost advantage over U.S. domestic supplies, there remained the concern of refiner-importers about the effect

of Canadian crude imports upon the opportunity to bring in cheaper overseas supplies because every barrel of "excepted" Canadian crude would mean loss in a U.S. refiner's quota for low-cost foreign oil in the U.S. system which restricted imports to 8 per cent of demand. Early in 1963, a further U.S. barrier was implemented (see note for January 1963).

AECL and Ontario Hydro proceed with Douglas Point reactor, followed by Pickering and Bruce in a continuing building program

In June, the federal government authorized Atomic Energy of Canada Limited (AECL) to begin construction of a large nuclear power reactor capable of producing 200 megawatts electric (MWe), without waiting for completion of its design and development phase, or for the NPD station (see note for February 1953) to go into operation. The decision to proceed was based on the confidence in the design and in the NPD design experience, and on the success of the fuel development program at Chalk River. It was also realized that a full-scale plant would have to be built and operated before real costs of large stations could be known. The new station was completed at Douglas Point, Ontario in collaboration with Ontario Hydro and went into operation in 1966. With start-up of the NPD reactor in 1962, AECL started work on the Pickering A Station, with 4-500 MWe units, which became operational in the period 1971-73 as the largest nuclear power station in the world. With Pickering underway, the Bruce A Station consisting of 4-750 MWe units was designed and constructed at a location near Pickering, at Tiverton, Ontario, and it went operational in 1976. Other CANDU units followed, raising the total in operation or under construction in 1980 to 25 power reactors, 18 years after completion of the first Station in 1962.

AECB's increasing responsibilities re. health and safety in late 1950s

On July 16, the Minister responsible for the Atomic Energy Control Board (AECB) identified, in a statement in the House of Commons, new and increasing responsibilities for the Board in health and safety matters. This came five years after a government prediction of the decline of AECB's responsibilities. In the interim, its duties relating to prospecting and mining and security matters had lessened as much of the information relating to the peaceful uses of atomic energy had become declassified. However, responsibilities concerning health and safety had increased, partly because of the greater use of radioisotopes in industry and medicine, but mostly because of the nuclear reactor projects outside Chalk River.

Royal Commission on Energy (Borden Commission) - Second Report 1959

The Second Report of the Royal Commission on Energy was submitted to the Government in July. The Commission, which directed its principal attention in this report to oil matters, concluded that Canada had ample proven reserves of crude oil to meet domestic requirements and to permit a substantial increase in the volume of exports. Because the productive capacity of the oil industry in Western Canada had reached 990,000 b/d in 1958, and actual production was less than half of this amount, and because of the loss of some exports to the U.S., there was a desire on the part of certain producers and of the Government of Alberta to secure the only remaining large domestic market not being served by Canadian crude, the Montreal refinery area. Consideration of the pros and cons of linking this

market to Western Canada crude became the main subject of the hearings before the Commission in 1958 and of its Second Report which was completed in July 1959. The Commission recommended a continuation of crude oil exports, without licence, and the filling out of the domestic market by replacing with domestic oil the petroleum products, manufactured in Montreal from imported crude, that were moving into the Ontario market. The Commission further recommended that if it became necessary to implement this national policy by regulatory measures, then imports of crude oil should be made subject to licence. The report also called for action on the part of the oil industry to enlarge its export markets in the U.S. The Commissioners recommended against the construction at that time of an oil pipeline to transport Canadian crude oil to the Montreal refinery area and that, before any such action was taken, an opportunity be given to the oil industry to demonstrate that it could find markets elsewhere in Canada and in the U.S. to sustain a healthy and vigorous Canadian oil industry with an incentive for further exploration and development.

Royal Commission
on Energy -
First and Second
Reports -
principal
impacts

The Royal Commission on Energy (Borden Commission) completed its work with the publication of its Second Report in July. From that report, and its First Report of October 1958, several principal recommendations had an impact on energy developments in the 1960s and beyond. These recommendations included the rejection of the proposal to extend the oil pipeline east of Toronto to Montreal pending testing of the option of filling out the domestic market as far east as the Ottawa Valley and promoting oil exports to the U.S. The Commission's recommendations also led to the procedure of active surveillance of oil and gas exports as to quantity and price, and overall regulation of the oil and gas industry through the National Energy Board which it recommended be established. The Commission's inquiry into irregularities concerning the financing and operation of certain gas pipelines served to point to the need for more effective regulation of interprovincial and international pipelines. The procedures thus adopted followed through into the 1970s when various northern and other pipeline proposals were considered as a means of reducing Canada's dependence on foreign energy supplies. The emphasis given to oil marketing issues in the Commission's Second Report pointed to the problems which arise between the integrated oil companies and the independent oil producers, and between international oil companies and a country which places a priority on developing its own resources. The Commission's hearings on the Montreal pipeline proposal served as a focus on the most intense debate on oil marketing issues to that time. It was not until June 1976 that the pipeline extension was eventually completed, security of supply being the main objective.

European Atomic
Energy Community
- Peaceful Uses
of Atomic Energy

An Agreement between the Government of Canada and the European Atomic Energy Community (EURATOM) for Cooperation in the Peaceful Uses of Atomic Energy was signed on October 6. This Agreement was updated in an exchange of letters on January 16, 1978, specifying that no material, subject to the Agreement as amended, may be used for the manufacture of any nuclear weapon or for any other military use of nuclear energy, or for the manufacture of any other nuclear explosive device. The 1978 undertaking and other provisions of the Agreement were to be verified in Canada by the International Atomic Energy Agency (IAEA), and in the Community by EURATOM and the IAEA in accordance with the agreements concluded between EURATOM, its Member States, and the IAEA (see also note for January 1978 and other nuclear safeguards notes).

National Energy
Board Act,
1959

Legislation to establish the National Energy Board (NEB) was introduced in the House of Commons in May and, after extensive debate, was passed by Parliament, and received Royal Assent on July 18. By proclamation, the National Energy Board Act came into force on November 2 (R.S., c.N-6). The legislation provided for the transfer from the Board of Transport Commissioners to the NEB of virtually all authority with respect to pipelines, the regulatory powers conferred on the NEB being very similar to those that had been exercised under the Pipe Lines Act by the Board of Transport Commissioners, and under the Exportation of Power and Fluids and Importation of Gas Act by the Minister of Trade and Commerce. Accordingly, those two Acts were repealed. Those powers included authority to licence imports of natural gas and export of gas and electricity, and the issuance of certificates of public convenience and necessity covering the construction and operation of interprovincial and international pipelines and of international power lines. By enacting the NEB Act, Parliament asserted regulatory jurisdiction at the federal level over oil and gas pipelines and international power lines together with jurisdiction over the export and import of gas and the export of electric power. When the Act was passed, the NEB was not authorized to control by licencing either the export or import of oil but the Act did authorize the Governor-in-Council by proclamation to extend to oil the export and import provisions of the Act and this was done in relation to oil exports in 1973. New authorities and responsibilities given the NEB related to the independent status as a court of record, the requirement that it conduct public hearings on all major issues coming before it, the restriction imposed on the government in acting on matters that did not have the prior approval of the NEB, and the advisory role it was expected to fulfill with respect to a broad range of energy matters. In addition, the new legislation empowered the NEB to regulate tolls and tariffs of all new pipelines that came under federal jurisdiction. It was also to assume that responsibility for federal pipelines in operation before it was established but this was not formalized until 1969. The federal government retained the power over the issuance of certificates for the construction of facilities and of licences for such purposes as the export of gas and electricity. As part of its overall responsibilities, the NEB is required to keep under review the outlook for Canadian energy supply and demand.

Uranium export
contracts
terminated by
United States
- stretch-out
plan initiated

On November 6, the Minister of Trade and Commerce announced that the federal government had approved new agreements made by Eldorado Mining and Refining Limited with the United States Atomic Energy Commission (USAEC) and the United Kingdom Atomic Energy Authority (UKAEA), designed to strengthen the position of the Canadian uranium industry during the following six years of retrenchment. The new agreements were completed in advance of the termination of the existing firm contracts which had made possible the rapid expansion of the Canadian uranium industry in the mid-1950s. Essentially all of Canada's uranium resource base into the 1960s had been developed in the 1950s to supply uranium for the military purpose of the United States and the United Kingdom, with 90% of the exports going to the USAEC. Markets and prices were guaranteed for uranium, and exploration was at a high level in that decade. In November 1959, the USAEC announced that it would not take up its options to purchase additional uranium. Stretch-out of existing contracts was negotiated with the USAEC and also with the UKAEA, as detailed in the November 6 announcement. Arrangements were made to transfer undelivered quantities of uranium between companies which were in production which, together with advance payments, were designed to help producers during a period of possible severe disruption throughout the industry, and allow for planning for the post-contract period beginning in 1962-63. Both the U.S. and U.K. governments had agreed to the transfer of contract quantities between Canadian producers and to make advance payments on Canadian uranium which could be delivered beginning in 1962. The Special Price Contracts with the USAEC terminated in the period March 31, 1962 to March 31, 1963, and the USAEC was not prepared to take up options running to December 31, 1966 because of extensive discoveries of uranium in the U.S. However, the U.S. agreed to negotiate the stretch-out plan in recognition of the important role Canadian producers had played in meeting the urgent requirements of the U.S. when uranium was scarce in the 1950s. Under the stretch-out plan, deliveries of uranium to the USAEC and the UKAEA were scheduled at 9,718 tons of U_3O_8 in 1961, declining to 1,100 tons in 1966.

Columbia River
Treaty - IJC
report on
benefit
principles

On December 29, the International Joint Commission submitted its report to the U.S. and Canadian governments, in response to their January 1959 request. The report was entitled "Principles for Determining and Apportioning Benefits from Cooperative Use of Storage Waters and Electrical Interconnection within the Columbia River System". This document became the basis for negotiations between the two countries, commencing in February 1960, and leading to the Columbia River Treaty in January 1961 and eventual ratification in September 1964.

World and
Canadian oil
surplus in the
late-1950s

Viewed in December, the situation in the Canadian oil industry was one of considerable retrenchment associated with a world oil surplus, and extensive shut-in capacity in the Western Canada oil industry. The ratio of production to production potential in Alberta was only 39% in 1958 compared with 70% in 1954. Notwithstanding the

overland oil import exemption granted Canadian oil by the Presidential Proclamation of April 30, 1959, a world surplus of major proportions had given rise to an intensification of U.S. import restrictions and resulted in a weakening of world oil prices. Saudi Arabian light crude oil had declined to the \$2.00 (U.S.) per barrel range. In the period 1947-57, world oil reserves had increased from 53.5 to 240.6 billion barrels, with the Middle East accounting for 80% of the increase. Owing to the development of this surplus, U.S. companies with large reserves in the Middle East were encountering increasing difficulties in holding and expanding markets for oil produced from their overseas holdings and, consequently, their efforts to use oil from those sources in their own, or affiliate, refineries in the U.S. was at the expense of Canadian oil export opportunities. While the international companies held a large proportion of the oil reserves in Western Canada as well, that oil tended to be less attractive financially since, under Alberta prorationing, U.S. refiners using Canadian crude were required to purchase oil produced by other companies as well as from their own holdings which was not the case with their Middle East holdings. The weakness of product prices in the U.S. in the late 1950s tended to further increase the competition, and the demand for cheap overseas crude. The effect of these adverse factors impacted on the Canadian oil industry and its exports, and contributed considerably to the environment in which the Royal Commission on Energy (Borden Commission) made its findings in 1959, and in which the Canadian government made its decisions leading to the National Oil Policy in February 1961.

Uranium
production
peaks in 1959

The production record available at the end of December showed that Canada produced 15,892 short tons of U_3O_8 in 1959 valued at \$331.1 million. In that peak year, prior to the rapid decline in uranium sales, uranium ranked fourth in Canada's exports following newsprint, wheat and timber. By 1968, uranium production had declined to a low of 3,701 tons, following which there was a slow recovery to 7,150 tons by 1980. In 1959, the Elliot Lake mining Camp of Ontario, which had commenced development following the initial discovery in 1949, accounted for almost 75% of Canada's total uranium output. Most of the remainder came from the Beaverlodge (Uranium City) area of northern Saskatchewan. At the height of activity in 1959, there were 23 uranium mines in operation. This number declined to 20 by the end of the year, to 11 by the end of 1960 and 3 at the end of 1964.

Legislation re.
the acquisition
of petroleum
and natural
gas rights in
Canada continues
to evolve

In the course of the rapid development of the oil and gas industry in Canada in the late 1940s and during the 1950s, each province and the territories established legislation for the disposition and administration of oil and gas rights within their jurisdictions. As viewed at the end of the 1950s, in December 1959, there were many common elements in all of this legislation but also some differences as a result of different approaches being taken by the various governments. In all provinces and in the territories, disposition of Crown lands was being governed by a Mines Act, or similar legislation. For Canada lands,

disposition was under the authority of the Territorial Lands Act, and the Regulations under that Act had the most extensive authority of any set of regulations then in force. In contrast, delegation was least extensive in British Columbia with most of the authority being retained within the Mines Act. Legislation in Canada relating to the acquisition of petroleum and natural gas rights was being administered in terms of two groupings: that concerned with the reservation or the permit stage, and that of the lease stages. Among the provincial and federal jurisdictions, there were variations in the reservation or permit stage as to area, number of permits allowed, permit term, fees, deposits, rentals, work obligations, credits, and grouping provisions. For leases, there were differences with respect to lease areas, credits, rentals, lease terms, work obligations and royalties. The legislation continued to evolve in the 1960s and 1970s to meet changing circumstances, particularly for Canada lands as activity increased in the North and offshore in the 1970s leading to the passing of the Canada Oil and Gas Act in December 1981.

THE YEAR 1960

National Energy Board' first hearing - gas export approval, and later hearings in 1965 and 1966

Following its establishment in late 1959, the National Energy Board commenced its first hearing early in January 1960. This was an omnibus gas exports hearing on six applications for licences to export natural gas and four applications for certificates authorizing the construction of related gas pipeline facilities. In total, the applications proposed the export over 20 to 25 years of about 6.8 exajoules (6.5 trillion cubic feet) of gas. The NEB concluded that there were adequate reserves for the proposed exports but did not recommend one of the six applications (Niagara Gas) because the proposed export price did not meet the test set out in the NEB Act of being "just and reasonable in the public interest". The government approved the NEB export recommendations on April 1. The application by Niagara Gas Transmission was approved later in the year when the company completed an upward revision of the export price. Following the major gas export approval in 1960, the NEB approved four new gas export licences in 1965 and three more in 1966, the latter involving shipments through the new Great Lakes Transmission System that Trans-Canada PipeLines Limited proposed to build through the U.S. from Emerson, Manitoba, to Sarnia, Ontario. The Great Lakes system was completed in late 1968 after Trans-Canada undertook to ensure that more than 50 per cent of all domestic deliveries of gas destined for Ontario and Quebec would be transported through the northern line in Canada. This proportion was increased to 60% in 1976.

Whiteshell Nuclear Research Establishment, AECL

On January 19, the federal government announced that the Whiteshell Nuclear Research Establishment would be built by Atomic Energy of Canada Limited at a site on the Winnipeg River, 96 km northeast of Winnipeg. One of its first studies was to involve heavy water moderated reactors. In 1962, a contract to build an engineering test reactor at Whiteshell was awarded to Canadian General Electric Company. The reactor, known as WR-1, went into operation in the mid-1960s. It provided facilities for large-scale testing of fuel rods, heat transfer systems and components for organic-cooled, heavy water moderated power reactors.

Coal industry support: federal measures to March 1960

As recorded in the Report of the Royal Commission on Coal (1960), federal monies expended to March 31, 1960 in support of the Canadian coal industry aggregated \$203 million. Those expenditures were authorized in terms of the following provisions. A. Those expenditures which directly encouraged the use of Canadian coal were authorized by the following: the Canadian Coal Equality Act, 1930; certain Government Directives Concerning Coal issued in the period March 8, 1955 to March 31, 1960; Springhill colliery Assistance Order, 1957; the Domestic Fuel Act, 1927 (expired June 30, 1932); Atlantic Provinces Power Development Act, 1958; Dominion Fuel Board,

1922-1941; Dominion Coal Board established in 1948; various Orders in Council; and the Coal Production Assistance Act.

B. Expenditures in the form of production subsidies, grants, special allowance and wage equalization payments were made during World War II to encourage the use of Canadian coal. C. Expenditures which indirectly encouraged the use of Canadian coal included services of the Lignite Utilization Board, 1917-1923; Geological Survey of Canada and Mines Branch research services, Department of Mines and Technical Surveys; and loans for capital expansion under the Atlantic Provinces Power Development Act, 1958.

Coal industry
support-federal
expenditures
to March 1960

An analysis was made by the Royal Commission on Coal (1960) of total monies spent by the federal government in support of and in assistance to the Canadian coal industry. As set out in the Commission's report, these expenditures totalled \$203 million to March 31, 1960. The largest component of the expenditures related to coal transportation subventions - \$135 million, as paid in the period 1928 to March 31, 1960. However, some \$327 million was spent on coal transportation subventions by the time the program was terminated in 1970, with 63 per cent of that amount being spent in the 1960s (see note for March 1970). In the expenditure account to March 31, 1960, wartime production subsidies and related outlays totalled \$44.3 million. An amount of \$7.2 million was spent on research and surveys, and about \$15 million on various coal bounties and other subsidies. Additional to the \$203 million of expenditures to 1960, loans made to coal companies aggregated close to \$20 million up to March 31, 1960.

Atomic Energy
Control
Regulations -
health and
safety - 1960,
1961 and 1978

The Atomic Energy Control Regulations were revised effective April 13, 1960, with one major enabling power being removed and another added. The Atomic Energy Control Board (AECB) could no longer requisition prescribed substances and related patent rights nor expropriate mines or works or property for the production of atomic energy. However, the Board was provided with the authority to control the health and safety of workers in the nuclear industry, a matter which had been left primarily to provincial governments. The need for the new authority had been demonstrated in the lack of interest by the provinces; in the Pronto case which had questioned the validity of provincial regulations (see note for August 1956); and in the fact that the AECB could launch a successful prosecution under Section 19 of the 1954 Atomic Energy Control Act whereas there was doubt that the provinces could. In 1961, detailed health and safety regulations were considered and adopted, with the provinces satisfied to have the federal government administer them because of a lack of provincial legislation and appropriate organizations. The 1960 Regulations remained essentially unchanged until 1974 when, effective June 4, a new set was issued which defined a "nuclear facility" subject to the Regulations to include a nuclear reactor or accelerator, an enrichment or separation plant, a heavy water plant or a waste disposal plant. Great emphasis was placed on the

licencing procedures for these facilities and on the powers of inspectors appointed by the AECB. In 1978, the Regulations were further changed, effective January 16, to more clearly include uranium and thorium mines and mills, and radon daughters were added to the list of prescribed substances. Radon daughters had been determined by the Ham Commission in its report of 1976 to be a probable cause of cancer deaths among Ontario uranium miners (see note for June 1976).

**Canada Oil and
Gas Regulations
- Canadian
participation
provisions**

In April, the Canadian participation provisions were introduced in the Canada Oil and Gas Land Regulations. These provisions were incorporated in Regulations Respecting the Administration and Disposition of Oil and Gas Belonging to Her Majesty in Right of Canada under all Lands Forming Part of Canada but not within any Province (P.C. 1960-474 of April 13, 1960). Section 32 of the Regulations states as follows:

- 32.(1) Upon application to the Minister a permittee shall be granted an oil and gas lease.
- (2) An oil and gas lease shall be granted for twenty-one years.
- (3) A lease shall not be granted under this section.
- (a) to a person unless the Minister is satisfied that he is a Canadian citizen and that he will be the beneficial owner of the interest to be granted;
- (b) to a corporation incorporated outside of Canada; or
- (c) to a corporation, unless the Minister is satisfied
- (i) that at least 50% of the issued shares of the corporation is beneficially owned by persons who are Canadian citizens; or
- (ii) that the shares of the corporation are listed on a recognized Canadian stock exchange and that Canadians will have an opportunity of participating in the financing and ownership of the corporation.

While not applying to the pre-production stage, no oil or other minerals could be produced for sale except under authority of a lease. Canadian participation provisions concerning production licences were incorporated in the Canada Oil and Gas Act which was debated in Parliament in 1981 and received Royal Assent on December 18, 1981.

**Arctic
sovereignty**

In a memorandum prepared for Cabinet, dated June 27, the Minister of Northern Affairs and National Resources reviewed matters relative to Canadian sovereignty over the Arctic Archipelago, cited various authorities concerning the basis for Canada's claim to sovereignty, and concluded that Canada had made so many displays of effective sovereignty in so many respects, and for so long a period, as to establish its title to all of the islands in the Arctic Archipelago upon the doctrine of effective occupation in conformity with International Law. In presenting evidence of international recognition of that claim, he referred to the fact that the U.S.A. at various times had acknowledged Canada's Arctic sovereignty including a "recent request to the Canadian Government for permission for two U.S. submarines to enter Canadian territorial waters in the Arctic Archipelago".

Uranium
contamination of
mine waters -
AECB controls
in force by
mid-1970s

During a debate in the House of Commons on July 7, the contamination of natural waters with radium as a result of uranium mining operations was noted in the context of the procedure under the Atomic Energy Control Act whereby mining permits were issued but mine safety remained a provincial responsibility. In 1964, the Ontario Water Resources Commission published a report showing that radioactive concentrations in the Elliot Lake uranium mining region were high enough to create environmental problems. Reduced levels of mining operations throughout the 1960s and into the 1970s prevented the contamination problem from becoming severe. By the mid-1970s, when uranium mining operations again began to increase, the Atomic Energy Control Board had developed principles for the management of mine wastes and had acquired a staff to ensure compliance with new pollution control standards.

Royal Commission
on Coal, 1960
(Rand
Commission)

In August, the Royal Commission on Coal (1960) which had been established by P.C. 1959-1293 of October 6, 1959 reported to the Government of Canada. The Royal Commission often referred to as the Rand Commission after the Commissioner, The Honourable I.C. Rand, Q.C., had been asked to inquire into and make recommendations upon certain matters pertaining to the Canadian coal industry. These matters concerned the markets for coal; the steps that could be taken to reduce the costs of coal production and distribution; the steps that the coal producing industry could take to secure as large a market as possible for Canadian coal and to place and maintain the industry on an economic basis; the measures that could be adapted by governments to support the economic production, distribution and sale of Canadian coal; and any other related matters. The Commissioner made recommendations concerning the coal production subsidy, setting out specific limitations including a provision that within the ten-year limit for the subsidy, coal production in Cape Breton of the Dominion Steel and Coal Corporation available for subsidization was to be reduced to not more than three million tons. Considerable emphasis was given in the recommendations to the importance of developing alternative economic activity in Cape Breton Island as coal mining was being phased down, as well as to measures for improving the efficiency of the coal mining industry and thereby reducing the cost of subsidization. One of the recommendations led to the reconstruction of the Fortress of Louisbourg as an historic site and an important tourist attraction for Cape Breton. In the course of its work, the Commission held public hearings in eight cities across Canada in all coal-producing provinces and the two major coal-consuming provinces during the period February-April 1960.

Canadian Nuclear
Association

The Canadian Nuclear Association (CNA) was established in September 1960 for the purpose of promoting the orderly and sound development of nuclear energy for peaceful uses in Canada and abroad. The membership of the Association includes electrical utilities, manufacturers, consultants, government departments, financial and

educational institutions, and labour organizations interested in the use of nuclear energy for electrical power generation as well as medical and industrial uses of radioisotopes. Much of the work of the Association is conducted through Standing Committees which address specific topics such as: codes, standards and practices, economic development, education and manpower, international affairs, legislative and public affairs, safety and environment, and technology. The CNA through its various committees participates in a number of public inquiries. Included in its special studies was one submitted to the Prime Minister in September 1978 entitled "Economic Impact of the Nuclear Industry in Canada".

**OPEC
established**

The Organization of Petroleum Exporting Countries (OPEC) was established in Baghdad on September 10, as an intergovernmental group to study posted oil prices. Its five founding members were Saudi Arabia, Venezuela, Iran, Kuwait, and Iraq, subsequently joined by Qatar, Indonesia, and Libya. After its headquarters moved to Vienna in 1966, OPEC's main activity became one of issuing proclamations declaring "solidarity" with the escalating demands of Libya and Algeria who joined in 1969. The Tehran Agreement of 1971 was to be a five-year accord that would freeze oil prices following a modest rise in the posted price to \$2.18 a barrel but it only lasted a few months, with each country insisting it had sovereignty over its oil concessions and soon the oil company consortiums were nationalized. Renewed war in the Middle East in 1973 led to rapid price increases, rising to a price close to \$12.00 (U.S.) by January 1, 1974 (see note for January 1974).

**Coal production
and demand
declines
following Leduc
1947 oil
discovery -
gradually
increases in
the 1960s**

The discovery of oil in major quantities in Alberta in the late 1940s resulted in a marked and continuing decline in coal use in the Canadian energy market as oil production increased. As a result of dieselization of the railways, coal as a percentage of total fuel used in railway locomotives declined from 95.4% in 1947 to 3.1% in 1960. The consumption of coal in domestic and building heating in 1960 was one-third the 1947 level. Total consumption of coal in the year 1960, as recorded in December, was 23.2 million short tons, about one half the 1947 level. This decline in coal use took place in a period (1947-1960) when energy demand in Canada doubled. Coal production reached its lowest level since 1906 in 1962 at 10.3 million short tons, declining from a peak of 19.1 million tons in 1949 and 1950. Coal production increased slowly in the 1960s to 16.6 million tons in 1970 mostly as a result of some growth in the domestic thermal power market for coal and the development of an export market, but major production growth did not take place until the 1970s when export increases accounted for most of the coal production increase to 27.7 million tons by 1975. Following a record low of 22 million tons in domestic consumption in 1961 based on domestic coal production and imports, domestic demand remained in the range of 25 to 28 million tons from the mid-1960s to mid-1970s and then increased to 41 million short tons in 1980.

NEB gas export approvals lead to increased gas field and pipeline activity

By December, the U.S. Federal Power Commission had approved most of the gas import applications that followed from the approval earlier in the year by the National Energy Board of five gas export applications, and this led to the initiation of several gas pipeline construction programs in 1960. The largest of these was the Alberta-California gas pipeline over a 1,376-mile route from the Whitecourt field in northwestern Alberta to San Francisco. This system was completed in December 1961. In August 1960, Trans-Canada Pipe Lines Limited commenced gas exports to the United States through a branch line to Emerson on the Manitoba-U.S. border. By the end of 1960 there were 58 gas processing plants in western Canada gas fields designed to remove propane, butane, natural gasoline and hydrogen sulphide from natural gas prior to its delivery into pipeline systems. Natural gas production in Canada in 1960 totalled 523 billion cubic feet, valued at \$52 million, with Alberta accounting for 73.4%; B.C., 16.4%; Saskatchewan, 6.9%; and Ontario, 3.3%.

Eldorado Mining and Refining Ltd - exploration restricted

Effective December, a federal government decision was taken restricting Eldorado Mining and Refining Limited's exploration activities to the immediate area of its mine located on the north shore of Lake Athabasca. This decision was taken at a time when the Company's Port Radium mine on Great Bear Lake was nearing the point of ore exhaustion and it was planning a large scale exploration program for other minerals in the Arctic region with the objective of extending the life of its Port Radium based activities. As a result of the exploration restriction, the Company entered a new era of considerably curtailed operation in contrast to the 1950s when it had followed the course of exploration normal to mining companies and which had resulted in the acquisition and development of its mine at Beaverlodge on the north shore of Lake Athabasca. In restricting the Company's operations to that immediate area, the federal government was responding to the views of the mining industry that Eldorado, as a Crown company, had no right to enter the field of exploration in competition with private enterprise. The exploration restriction was lifted in January 1974.

THE YEAR 1961

Nuclear reactor
exports to India
- later ended
in 1974

On January 16, an NRX-type research reactor (CIRUS) officially commenced operations in India. The reactor was a gift in 1956 from Canada to India under terms of the Colombo Plan. On November 15, 1963, Canada and India agreed to cooperate in the building of a CANDU-type nuclear power station at Rana Pratrap Sagar, India, under specific safeguards agreements. This 200 MWe power reactor (RAPP-I) commenced operations in 1972. The sale of a second reactor (RAPP-II) in 1966 led to a similar agreement in December of that year. In December 1971 the bilateral Canada-India agreements on RAPP-I and RAPP-II were renegotiated to trilateral Canada-India-IAEA agreements, with verification of the safeguards being assumed by the International Atomic Energy Agency. On May 22, 1974, the Canadian government suspended the shipment of all nuclear equipment and material to India after India detonated on May 18 a nuclear device underground using Canadian materials. The Canadian government followed the May 1974 embargo with an announcement in the House of Commons on May 14, 1976 that there would be no further nuclear cooperation with India. That country had become a member of the nuclear weapons club using a nuclear facility provided by Canada in good faith. This event led to the formulation of more stringent non-proliferation specifications by Canada in 1974 (see note for December 1974).

Columbia River
Treaty signed -
later ratified
in Sept. 1964

On January 17, the governments of Canada and the United States signed the Columbia River Treaty. The history of the Treaty dates back to 1944 when the International Joint Commission (IJC), at the request of the two governments, undertook investigations to determine whether further development of the water resources of the Columbia River basin would be practical and advantageous to both countries. An Engineering Board set up by the Commission submitted a report in March 1959, which indicated that there were a number of sites in Canada suitable for the construction of large storage reservoirs that could be used to regulate the Columbia River for storage and power development purposes. In January 1959, the two governments had also asked the IJC to make a special report as to how benefits produced in the U.S. from storage products upstream in Canada might be shared by the two countries. Negotiations between the two governments on the selection of the best possible sites for storage dams, and the apportionment of the benefits to be derived from them, began in February 1960 and terminated with the January 17, 1961 signing of the Columbia River Treaty but it was not until January 1964 that a Protocol modifying and clarifying the Treaty was approved, with the Treaty finally being ratified in September 1964.

National Oil
Policy, 1961

On February 1, the Minister of Trade and Commerce announced in the House of Commons a national oil policy "to achieve target levels of production of oil, including natural gas liquids, which will be set from time to time, and which will be designed to reach approximately 800,000 barrels a day in 1963. This objective for 1963 can be achieved by the industry on an economically sound basis, and will be approximately as high as the figure which would be achieved if the Montreal pipeline were to be constructed". This target, and intermediate targets, were to be "reached by increased use of Canadian oil in domestic markets west of the Ottawa Valley, and by some expansion of export sales largely in existing markets which can be reached through established pipelines". Refinery capacity was to be increased in Ontario so that by 1963 capacity would be sufficient to enable the Ontario market, west of the Ottawa Valley, to be supplied substantially from Canadian crudes. The government program for expanded production of oil was to be met on a voluntary basis, but importers of crude oil and petroleum products were required to report their imports monthly from January 1, 1961, in order to permit the National Energy Board to continue to assess the oil market situation. If voluntary efforts were not producing the results anticipated, the federal government would take whatever steps were required to ensure the success of its policy, including proclamation of Section 87 of the National Energy Board Act which provides for the regulation of imports and exports of oil. The government believed that the increase of exports, which was integral to the program, was wholly consistent with the growth of sales of Canadian oil contemplated when exemption from U.S. oil import control was established (see June 1959 note). The specific 1963 production objective of 800,000 barrels per day was reached, and by 1966 one million barrels per day were being produced. The general objective of maximizing Canadian oil production remained as an overall policy guideline until December 1973 when a new oil policy was announced.

Royal Commission
on Coal, 1960
- government
committee
report on
recommendations

Following the presentation to the federal government of the Report of the Royal Commission on Coal in August 1960, an Interdepartmental Committee examined the recommendations and reported to the Minister of Mines and Technical Surveys on May 25, 1961 on the matter of subsidies. While agreeing with the Royal Commission Report that the coal problem was largely social in character, the Committee recommended a more resolute approach to the objective of reducing the production of the coal industry to an economic level. Specifically, the Committee suggested the immediate ending of transportation subsidies and adopting a per ton subsidy payable directly to the producing companies which would be reduced yearly. Equally resolute planning and action was recommended for the rehabilitation of the 4,500 workers who would be released from mining operations in achieving a self-sustaining level of production. However, transportation subventions were not terminated until 1970 (see note for March 1970). In 1962, the Interdepartmental Committee made recommendations, relative to the Royal Commission Report, on coal research (see note for October 1962).

Canada Oil and
Gas Land
Regulations

The Canada Oil and Gas Land Regulations implemented, by P.C. 1961-797 of June 6, 1961, and amended by P.C. 1963-408 and P.C. 1964-1614 were made under the Territorial Lands Act and the Public Lands Grants Act. The Regulations applied to Canada lands, defined as all lands owned by the Crown in the right of Canada not within any province, including both the Yukon and the Northwest Territories. Under this legislation, mineral rights were issued by the Department of Indian Affairs and Northern Development in the form of exploratory licences, exploratory permits, and oil and gas leases. When the Department of Energy, Mines and Resources was established in 1966, authority to administer Canada lands south of the 60th Parallel of Latitude was passed to that Department. Under the 1961 Regulations, the granting of oil and gas production licences in the lease stage was restricted to Canadian-owned firms or foreign-controlled companies in which Canadian would have an opportunity to invest. However, there were few restrictions on who could hold exploration permits.

Oil and Gas Land
Order No. 1 -
Canada Oil and
Gas Land
Regulations

In the Canada Oil and Gas Land Regulations approved by the Governor in Council on June 6, 1961, Section 58 provided that the Minister of Northern Affairs and National Resources could determine, by Order, the terms and conditions for an oil and gas lease of lands which reverted to the Crown when a permittee selected his leases. The Regulations were originally designed to encourage industry operators to carry out exploration programs in Canada's frontier regions in the Arctic and offshore. At the time of their promulgation, it was necessary to offer fairly generous terms and conditions, since the frontier regions were environmentally hostile for operations, geological prospectivity was unknown, competition for international exploration funds was intense, and oil and gas was a glut on the market. Under the 1961 Regulations, the Minister was authorized to dispose of the corridor acreage between the sections leased in a permit area when a permittee converted to lease. The public auctions were intended to provide a means by which the Crown could increase its revenues through disposition of its share of the evaluated properties. A potential drawback of the public sales was the breaking up of the productive unit among competing owners. In 1961, the modified checkerboard system was supplemented by Land Order 1-1961, in effect from 1961 to 1970, which enabled the permittee, upon conversion from permit to lease, to regain the corridor acreage from the Crown and thereby avoid disposition of the surrendered sections to third parties. As a result, the permittee could acquire the whole of the productive area and any discovered reserves could be developed as a unit, considered to be a more efficient arrangement than the pooling and unitization that would be required when there was more than one competing owner. This system became known as the "unitary development concept". As recorded in April, June and December 1970 items, Land Order 1-1961 was revoked pending review of the Canada Oil and Gas Land Regulations in the light of new oil and gas activities in the North and in the offshore.

U.S. natural gas
markets opened
by Alberta to
California line
and Trans-Canada
lateral

In December, the 1368-mile gas pipeline from Alberta to California was completed at a cost of \$300 million. In addition, more than 200 miles of new lateral lines were completed in Alberta to supply the system. The trunk line consists of 351 miles of line in Alberta, a 107-mile section cutting across the southeast corner of B.C. to an export point near Kingsgate, and 910 miles of trunk line in the U.S. to San Francisco. The system was designed to transmit 1,200 million cubic feet of gas per day. This new pipeline system opened up a major market in the U.S. for Canadian natural gas. At the same time, considerable amounts of Canadian natural gas were moving to U.S. markets through the spur line from Winnipeg to Emerson, Manitoba from the Trans-Canada pipeline, with 1961 being the first year of operation. The large volumes of gas exports that developed in the early 1960s followed from the National Energy Board export approvals of 1960. Exports increased from 109.8 million cubic feet in 1960 to 404.7 billion in 1965 and 780.2 billion in 1970. Before completion of any of the major domestic and export pipelines in 1955, gas exports in that year totalled only 11 billion cubic feet.

THE YEAR 1962

CANDU - NPD Generating Station start-up

Canada's first nuclear-electric development was the 20,000-kw Nuclear Power Demonstration (NPD) station which went into service in April at Rolphton, Ontario. Later, this CANDU-PHW (Canada-Deuterium-Uranium, Pressurized Heavy Water reactor) was classified at an electric power output of 25 MW(e). Operation of this station demonstrated the soundness of its design and established confidence in the Canadian type of nuclear power reactor - CANDU. It was followed by Canada's first full-scale nuclear power station at Douglas Point, Ontario, on the eastern shore of Lake Huron, which went into operation in 1966 with a single 200 MW(e) unit. This was followed by the Pickering Generating Station A on the shore of Lake Ontario, a few miles east of Toronto with start-up in 1971 and designed for four 500 MW(e) units (see also notes for January 1954, December 1978, and other CANDU notes).

Uranium exports under new U.K. contract but production decline continues

On June 30 the Minister of Trade and Commerce announced that an export contract had been signed under which Eldorado Mining and Refining would sell 12,000 short tons of uranium to the United Kingdom Atomic Energy Authority (UKAEA) over a period extending until early 1971. This would have the effect of extending the period of operations of the remaining Canadian uranium producers by almost 17 months at the contractual delivery rate in effect on June 1, 1961. The basic price was \$5.03 per pound of uranium, with provision for price escalation in the event of increases in basic cost levels over the period of the contract. As part of the effort to keep the Canadian uranium mining industry in operation following the termination by the U.S. of its purchase contracts (see November 1959 note), the new U.K. purchase was divided among mines in proportion to their contracted rates of delivery as of July 1, 1961. This contract was additional to two small contracts signed with the UKAEA in the mid-1950s. Despite this additional sale, and the uranium stockpile programs (see July 1963 note), uranium production continued to decline, to a low of 3,701 tons of U_3O_8 in 1968, from the peak of 15,892 tons in 1959.

Oil sands - initial approval given to GCOS

On October 2, the Government of Alberta approved a proposal by Great Canadian Oil Sands Limited (GCOS) to develop an oil sands project in the Fort McMurray area of Alberta to produce synthetic oil from the oil sands at a rate of 31,500 barrels per day. GCOS had been formed by a group of businessmen in 1953 and, in 1958, had signed a contract with Sun Oil Company Limited, a wholly-owned subsidiary of Sun Oil Company of Philadelphia, giving GCOS the right to mine and process oil sands from a lease held by Sun. In addition, Sun agreed to purchase 75% of the crude oil produced, with the remainder being contracted for sale to Canadian Oil Companies Limited, a company later acquired by Shell Canada Limited. GCOS had made its first application to the Alberta Oil and Gas Conservation Board

in 1960, and, in 1963, following the October 1962 approval, submitted a revised application at 45,000 barrels per day capacity which was approved in April 1964. On the basis of this approval, GCOS proceeded to develop its project for the production stage which was reached in September 1967.

Royal Commission
on Coal, 1960 -
government
report on
recommendations

Following the presentation to the federal government of the Report of the Royal Commission on Coal in August 1960, an Interdepartmental Committee examined the recommendations and reported to the Minister of Mines and Technical Surveys in May 1961 on subsidies, and in October 1962 on research. With regard to the benefits to be derived from further research, the Committee found it difficult to foresee a final solution in research to the problems of the Canadian coal industry during the following few years. A long-term comprehensive research program would be desirable, but the Committee concluded that the amelioration of the problems facing the coal industry rested on more direct and urgent schemes than the increases in competitive ability that might be effected by engineering research. The Committee did recommend four proposals for research but also recommended economic studies on the greater use of coal within the Atlantic Provinces. As in the case of the May 1961 report of the Interdepartmental Committee on the recommendations of the 1960 Royal Commission on Coal, the Committee's October 1962 report contains detailed analyses of the Commission's recommendations.

Quebec Hydro
power
development,
following 1962
nationalization

In November, the Government of Quebec announced its nationalization of privately owned power utilities in the Province and, by the end of the 1960s, had most of those companies as well as a number of electric cooperatives and municipal systems incorporated into the Quebec Hydro-Electric Commission. In 1960, the Quebec government had announced that new hydroelectric sites would no longer be made available to private interests for development, and following the 1962 policy initiatives, Quebec entered a period in the 1960s of extensive hydroelectric development on the Manicouagan and Outardes Rivers. The Manic 5 plant with an installed capacity of 1,322,400 kW in four units was completed in the early 1970s at a site 125 miles from the mouth of the Manicouagan River. The Manic 2 plant with an installed capacity of 1,015,200 kW was completed with eight units by 1967 at a site 11 miles from the mouth of the River. The Manic 1 plant near the mouth of the River was completed with three units and a capacity of 184,400 kW in 1967. The Manic 3 plant, 50 miles from the mouth of the River, was completed in the late 1970s with a capacity of 1,176,000 kW in six units. In addition, two plants with an aggregate capacity of 1.4 million kW were completed on the Outardes River by 1969. In 1965, the first of three 735-kV lines, extending from Manicouagan-Outardes to Montreal, was completed. This was the highest transmission voltage in service in the world at that time. The first James Bay hydro studies were conducted in 1964, and the first power plant went into operation, at the LG 2 site, in October 1979 (see note for October 1979).

**NPD in operation
- AECB's
licencing
procedure
established**

By December, the NPD (Nuclear Power Demonstration) reactor, which had been initially planned in 1953, was in operation at Rolphton, Ontario. In addition, the Douglas Point Station was under construction, and planning was underway for the Pickering A station near Toronto. By this time, the procedural method by which a licence could be provided was being well established by the Atomic Energy Control Board (AECB) to ensure that all relevant safety factors would be assessed before an operating licence was issued. Three stages in the approval process were identified: the approval of the proposed site; construction approval; and an operating licence. The site approval process now involves an environmental impact study and a public information program. The construction approval process places major emphasis on health and safety. An operating licence is only issued after the Atomic Energy Control Board is satisfied with reactor performance, first at low-power levels and then at full-power levels. Licences are issued by the AECB for a limited period of time, with the licensee being required to apply for renewal before the end of the period of the existing licence.

**Peace River power
development**

On December 21, the Comptroller of Water Rights of British Columbia issued a licence to the B.C. Hydro and Power Authority permitting the construction of the Peace River storage dam, powerhouse and associated works. The project had initially been announced by the B.C. government in October 1957 but did not go into the active planning stage until the B.C. government acquired the B.C. Electric Company and the Peace River Power Development Company in August 1961. The Peace River is the largest tributary of the Mackenzie River system. The large hydroelectric power potential of the Peace River in B.C. had first been investigated by the Peace River Power Development Company. After that company's interests were acquired by the B.C. government, they were merged with the holdings of the B.C. Electric Company to form the B.C. Hydro and Power Authority in March 1962. The dam and power project on the Peace River near Hudson Hope in northeastern B.C. was completed in 1968, with an installed capacity of 1,135,000 kW. Two 500 kV transmission lines, almost 600 miles long, were completed in early 1969 and 1971 to the Vancouver and lower mainland area of the Province. At the end of the 1960s, this \$780 million project was accounting for over 30 per cent of B.C. Hydro's installed electrical generating capacity.

**Mines Branch
research on new
uses for uranium
and on ore
processing**

When demands for Canadian uranium declined, attention was directed to possible non-nuclear uses. In 1960, research commenced in the Mines Branch (now CANMET) of the Department of Mines and Technical Surveys (now EMR) on the possibility of alloying uranium with ferrous metals to produce a better steel or ferro alloy. This appeared promising because uranium has properties similar to molybdenum and tungsten. A report on research work done to December 1962 on uranium as an alloying element in steel showed that uranium, when added in small amounts, was found to improve the high-temperature properties of steel. Research done on non-ferrous alloys, such as brass, also

demonstrated improved quality through the addition of small amounts of uranium. Aside from this specialized end-use research, the Mines Branch had in the 1950s and into the 1960s conducted laboratory investigations on recovery and beneficiation procedures for the processing of uranium ores including flotation procedures in mills and the use of a new technique of bacterial leaching of uranium from ore by the circulation of mine water through broken ore in mines.

THE YEAR 1963**U.S. oil import
restrictions
tightened**

Effective January 1, U.S. oil import allowables which had been set at 8 per cent of domestic demand in 1959, with Canada being exempted, were changed to 12.2 per cent of U.S. estimated production for all areas east of the Rocky Mountain, with Canadian oil imports being part of the 12.2 per cent import allowable. This put Canadian oil in competition with overseas oil for the available market. U.S. policy at that time towards Canadian oil was influenced by the U.S. Administration's desire to provide a growing market for overseas oil. In effect, Canada administered an informal restraint on its oil exports to the U.S. as from 1963.

**Nelson River
power - initial
studies**

On February 18, an Agreement was entered into by the governments of Canada and Manitoba under which the federal government undertook to share equally with Manitoba the cost of investigating the feasibility of developing the hydroelectric potential of the Nelson River. Under the terms of this Agreement, the Nelson River Programming Board was set up to administer the Agreement, and the Nelson River Administrative Committee was established to direct and supervise all studies. Manitoba represented to Canada that the Nelson River had a power potential of the order of 4 million kilowatts of firm power, approximately 2 million kilowatts of which would be surplus to Manitoba's requirements for a considerable period and that, if any part of this potential was to be made available at economic rates in the near future, it must be developed for large markets outside Manitoba to take advantage of economies of scale in which long distance transmission of electric energy would play a vital role. Manitoba proposed a series of studies to be completed by March 1964 on the feasibility of Nelson power development and the federal government agreed to pay 50 per cent of the cost of the studies, up to a total of \$500,000, later increased to \$650,000.

**Prime Minister's
announcement on
first uranium
stockpile**

On June 26, Prime Minister L.B. Pearson announced arrangements for stockpiling uranium as a short-term measure to maintain employment in the Ontario Elliot Lake and Bancroft uranium mining areas (see following note for July). The program was to operate from July 1, 1963 to June 30, 1964 to keep the mines in production until alternative sources of employment could be developed. The view at that time was that, while the eventual prospects for a revival in world demand for uranium were good, the revival would not be fast enough or large enough to justify a full stockpiling program meantime because the stocks accumulated would be of such size that they could exert a depressing influence on the price of uranium for many years. Extended stockpiling would not be in the national interest. Notwithstanding this June 1963 position, a second stockpiling was operated in the period July 1, 1965 - June 30, 1970 and a third in the period 1971-74.

Uranium stockpiles

On July 1, the federal government implemented its first uranium stockpiling program. The Canadian uranium industry had risen rapidly to prominence in the 1950s based on contracts with the United States and, to a lesser extent, with Britain. These contracts contained option clauses to purchase additional quantities of uranium but in late 1959, Canada's peak production year, the purchasers decide they would not exercise their options. There followed a period of fairly rapid decline, tempered somewhat by the institution of a uranium delivery "stretch-out" program, related to both U.S. and British contracts. Arrangements were also made to permit the transfer of contract commitments between companies. As a result, the less economic operations ceased production and transferred their contract commitments. Denison Mines Limited, one of the two principal remaining operators, had completed its contracts by mid-1963 and was faced with mine closure. In order to alleviate the serious problem of its closure in the Elliot Lake area of Ontario, the Canadian government introduced the first uranium stockpiling program which operated from July 1, 1963 to June 30, 1964. Denison and the other Elliot Lake producer, Rio Algom Mines Limited, were each given contracts to deliver uranium to stockpile. Faraday Uranium Mines Limited in the Bancroft, Ontario area was also given a contract. In 1965, following the collapse of Denison's contract with France, the Canadian government instituted the second stockpile which was authorized for the period July 1, 1965 - June 30, 1970, with all previous uranium producers being entitled to sell limited quantities to the federal government at a base price of \$4.90 a pound with annual escalation (see notes for July 1965, December 1970, August 1973 and other notes under this heading). The first stockpile consisted of 5.4 million pounds of U_3O_8 and the second accumulated 13.9 million pounds of U_3O_8 .

National Power Policy

On October 8, the Minister of Trade and Commerce announced in the House of Commons a national power policy. The policy placed particular emphasis on:

- (a) "the desirability of Canada taking fullest advantage of the evolutionary changes that have taken place in the nature of the power industry, including technological improvements in generating and transmission facilities, and the reduced costs of power associated with these;
- (b) "the provision of abundant supplies of electrical energy to consumers throughout Canada at the lowest possible cost to encourage and accelerate economic development and growth;
- (c) "the need for Canada to have a flexible export policy which, inter alia, would permit the export of large blocks of power to the United States for a relatively long period of years to assist in the immediate development of certain large-scale Canadian power projects, particularly undeveloped hydro resources which might not be viable in the near future unless provision were made for the marketing in the United States of a significant portion of their output; and

- (d) "the strengthening of our balance of payments position through the export of power surplus to our own needs."

The statement noted that the National Energy Board is required to certify that power to be exported does not exceed the surplus remaining after due allowance has been made for reasonably foreseeable requirements for use in Canada, and that the export price is just and reasonable in the public interest. Export licences, issued by the NEB with the approval of the Governor-in-Council, must not be for a term in excess of 25 years. The statement describes the changes in the power industry which had taken place since 1907 when the Electricity and Fluid Exportation Act came into force and limited the term of an export licence to one year. By the 1960s it was unusual for a large utility to be dependent on one source of power supply and, consequently, an export sale could be terminated without hardship in the export market if the power was required in the domestic market. The new policy with its provision for up to 25-year export permits was designed to encourage the development of large low-cost power sources and the distribution of related benefits as widely as possible through interconnection between power systems within Canada; and to encourage power exports and interconnections between Canadian and U.S. power systems where such would induce early development of Canadian power sources.

**Trans-Northern
Products
Pipeline**

Effective October, the Trans-Northern Products Pipeline, which was constructed in the early 1950s to transport petroleum products from the Montreal refinery area to Toronto, was reversed for the Kingston-Toronto section so that petroleum products could be delivered from Toronto refineries to eastern Ontario. This was in keeping with the National Oil Policy, announced in February 1961, which was directed to the supply of all areas west of the Ottawa Valley line with products produced from Canadian crude oil, thereby replacing products produced in Canada from foreign crude and products imported from other countries. Trans-Northern was incorporated by Special Act of Parliament in 1949, being an interprovincial pipeline.

**Glace Bay heavy
water plant
started,
followed by
second N.S.
plant at Port
Hawkesbury**

In December, the federal government awarded a contract to Deuterium of Canada Limited for the construction of a heavy water plant at Glace Bay, Nova Scotia. The government guaranteed the purchase of 1000 tonnes of heavy water over a period of five years at a price of \$20.50 per pound. After many construction delays and ultimate acquisition of the property by Atomic Energy of Canada Limited, the plant went into production in 1976, with full production not achieved until 1979 at 400 tonnes per year. Contract for the second Nova Scotia heavy water plant was awarded to Canadian General Electric Company in December 1965 for construction of a 400 tonnes per year plant at Port Hawkesbury, N.S. This plant was completed in 1971 and it operated for a number of years at 60% of design capacity.

Uranium industry
- its rise and
decline

The production record available in December showed that uranium deliveries were only 8,141 short tons of U_3O_8 in 1963, little more than one-half of the output of 15,892 tons in the peak year, 1959. The continuing poor prospects had led to the government decision to establish a stockpile program as a temporary measure in an endeavour to keep the industry alive (see note for July 1963). The history of the industry had been characterized by a rapid build-up in resource potential and production to the peak year of output in 1959 followed by a rapid decline. In 1950 exploration for uranium by the general public and private mining companies had just begun. By 1955 all of the important discoveries were either being mined or were being prepared for mining. Production in that year amounted to 1300 tons of U_3O_8 . By 1959, a total of 23 mines were in operation and shipments totalled 15,892 tons valued at \$333 million. With the announcement in 1959 by the United States that it would not exercise its option to buy additional uranium from Canada, and in order to avoid a collapse of the industry when the contracts expired in 1962 and 1963, the government, through Eldorado Mining and Refining Limited, negotiated a stretch-out of delivery of uranium that was already under contract. At the end of 1963, there were only six mines in operation. The stockpile program was implemented during the year in order to maintain employment in two mining communities for a slightly longer period in the hope of finding alternative employment for the miners.

THE YEAR 1964Columbia River
Treaty protocol
leading to
ratification

On January 22, Canada and the United States approved a Protocol modifying and clarifying the 1961 Columbia River Treaty. Although the U.S. Senate had adopted a resolution approving the Treaty as signed in January 1961, ratification did not take place in Canada. Following the Hyannis Port meetings between President Kennedy and Prime Minister Pearson in the spring of 1963, formal negotiations resumed between the two countries. At the same time, meetings were held between the governments of Canada and British Columbia resulting in a main agreement being signed on July 8, 1963, and a supplementary agreement on January 13, 1964. These agreements outlined the respective responsibilities of the two governments in Canada in the development of the Columbia River. Following approval of the Protocol on January 22, 1964, the treaty and Protocol were submitted to the Canadian Parliament in March 1964, and the House of Commons and the Senate voted in favour in June 1964. An agreement under which a group of U.S. utilities would purchase Canada's share of the downstream power benefits for a 30-year period was signed by the Columbia Storage Power Exchange and the British Columbia Hydro Power Authority on August 13, 1964. Sale of the bond issue on August 26 to finance the purchase cleared the way for ratification of the Treaty by Canada and the U.S. on September 16, 1964.

Oil Sands - GCOS
approved - other
projects
deferred

On April 10, the revised application by Great Canadian Oil Sands Limited (now Suncor) to construct a 45,000 barrel per day plant in the Athabasca oil sands area was approved by the Alberta Oil and Gas Conservation Board. The Company had received a permit in October 1962 to construct a plant to operate at a rate of 31,500 barrels a day but in 1963 had applied to the Board to produce at a revised rate of 45,000 b/d. Although this project was approved, the Board deferred applications by Cities Service Athabasca, Inc. and Shell Canada Limited on the grounds that such large-volume production would disrupt the conventional oil industry in Alberta. The GCOS plant went into production in September 1967, by which time Sun Oil Company of Philadelphia had invested a quarter of a billion dollars.

Nelson River
power-studies
continued

A second Agreement, signed by the federal and Manitoba governments on May 27, extended the Nelson River power feasibility studies initiated by the Agreement of February 18, 1963. The new Agreement provided for a continuation of the feasibility work until March 1966 at an estimated cost of \$3 million, with the federal government financing one-half of the cost, the balance being shared by the Manitoba government and Manitoba Hydro. The Nelson River Programming Board submitted an interim report "Nelson River Investigations" in December 1965 and a final report in February 1967. In its interim report, the Board developed a plan for a minimum power development of 855,000 kilowatts on the Nelson River. This was called

"Phase I Development" and included the following components: the Kettle Power Site; diversion of substantial flows from the Churchill River Basin into the Nelson River at Split Lake; regulation of Lake Winnipeg by means of control work at the outlet of the Lake; and high voltage transmission facilities to transmit power to southern Manitoba. The Programming Board recommended the Phase I development as the minimum that would be economic in terms of Manitoba's power requirements while facilitating an advantageous export of power. In addition, Phase I would bring about important indirect benefits with significant spin-off effects to Manitoba and Canada in total. The Programming Board's December 1965 recommendation became the basis for the February 15, 1966 Agreement between Canada and Manitoba pertaining to the development of Nelson River hydroelectric power and the July 12, 1967 Agreement pertaining to the transmission facilities. The Programming Board's final report, dated February 1967, updated the interim report cost estimates, and concluded that the ultimate capacity of the Nelson River and the associated diversions of the Churchill River would be about 6,000 megawatts.

Columbia River
Treaty -
Canadian
Entitlement
Purchase
Agreement

The Canadian Entitlement Purchase Agreement of the Columbia River Treaty was signed on August 13, 1964. Under terms of that agreement, Canada's share of downstream power benefits resulting from the first 30 years of scheduled operation of each of the storage projects was sold to a group of electric utilities in the United States known as the Columbia Storage and Power Exchange. The Columbia River Treaty had been signed on January 17, 1961 and was ratified by the United States Senate in March of that year. Ratification was delayed in Canada and further negotiations between the two countries resulted in formal agreement, by an exchange of notes on January 22, 1964, to a Protocol to the Treaty and to an Attachment Relating to Terms of Sale. The Treaty and related documents were approved by the Canadian Parliament in June 1964, followed by the Canadian Entitlement Purchase Agreement with the U.S. in August, and the formal ratification of the Treaty and Protocol on September 16, 1964. The sum of \$253.9 million (U.S.) was delivered to Canadian representatives as payment in advance for the Canadian entitlement to downstream power benefits during the period of the Purchase Agreement.

Columbia
River Treaty
ratified -
related benefits

Ratification of the Columbia River Treaty on September 16, 1964 by Canada and the United States made provision for payments for flood control totalling \$64 million (U.S. funds) by the U.S. government to Canada as the Treaty storage dams were completed in Canada. Treaty dams at Mica Creek, on the northernmost part of the Columbia River, at the outlet of the Lower Arrow Lake near Castlegar, and on the Duncan River, a northern tributary to Kootenay Lake, were designed to control seasonal fluctuations of the Columbia's flow, thereby reducing flood hazards and increasing the power potential in both Canada and the U.S. The construction of these storage projects was to be the first step in a series of developments planned for the Columbia River basin in Canada, with the

Mica dam to ultimately produce 2,600 MW of power. Other projects located downstream from Mica in Canada and on the Kootenay River would raise the total potential resulting from the Treaty to more than 6 million kilowatts. In payment for the downstream power benefits as sold to the Columbia Storage and Power Exchange, a group of power entities in the U.S., for a period of 30 year, the Government of Canada received the sum of \$253,929,534 (U.S.). The Canadian dollar equivalent, \$273,291,666, was paid to the B.C. government under terms of the Agreement between Canada and B.C., dated July 8, 1963. B.C., in turn, undertook to use these funds for the construction of the three storage dams on the Columbia River: Duncan, completed in July 1967; Arrow, completed in October 1968; and Mica, completed in March 1973.

**Oil and gas
reserves rapid
increase and
pipeline
expansion**

Assessments made, effective December, showed that the 1964 additions to natural gas and oil reserves were the largest annual additions in the history of the industry in Canada. Natural gas reserves increased by 17.4% in the year to 43.4 trillion cubic feet, equivalent to 31 years of supply at the 1964 rate of production. Oil reserves increased by 26% to 7 billion barrels, including natural gas liquids. Indicative of the amount of growth in the industry, oil pipeline mileage at the end of 1964 was close to 12,000 miles, mostly for crude oil transportation but including 1,300 miles for natural gas liquids and 900 miles for refined petroleum products. The average price of crude oil in Alberta fields was \$2.46 a barrel, a 10% decline from \$2.73 in 1950. Gas pipeline mileage totalled 41,000 miles, including gathering, transmission and distribution lines. Prior to the Leduc oil discovery in 1947, the pipeline system in Canada consisted mainly of a few hundred miles of small diameter gas pipelines in Alberta and the Portland, Maine to Montreal oil pipeline.

**Syncrude
oil sands
project**

Syncrude Canada Limited was incorporated on December 18. One of the original participants, Cities Service Ltd., had submitted an application to the Alberta Oil and Gas Conservation Board in 1961. In 1968, Syncrude revised the application to provide for an 80,000 barrel per day plant to produce synthetic crude from the oil sands. Subsequent amendments led to approval by the Board in December 1971 of a plant designed to produce 125,000 barrels a day. The project was rescued through federal, Alberta and Ontario government participation in 1975. (See note for February 1975). The project was completed and went into production in August 1978.

**Canada-U.S.
electric power
connections -
related benefits**

By December, a major international electric power interconnection, that had been under construction during the year, was completed and was in operation between power systems in British Columbia and Washington, the interconnection having a line capacity of 300 megawatts. This project had been preceded by nine other electric power interconnections between Canada and the United States, the first being completed in 1915. The largest were the 800 megawatt interconnections between Ontario and Michigan completed in 1959, and between Ontario and New York in 1960. In the period 1968-1979, 13 more international power

lines were constructed between the two countries, with the largest being the 500 megawatt lines between B.C. and Washington in 1968, between B.C. and Washington in 1973, between Ontario and Michigan in 1973, and between Manitoba and Minnesota in 1977. The construction of international power lines continued in the 1980s. Power line systems connecting electrical utilities on either side of the international boundary have enabled Canada to export surplus energy. They have also enabled utilities of the two countries to participate in the many advantages that accrue from being associated with major power pools, including emergency support in the event of power failure. The National Power Policy, announced in October 1963 was an important factor in encouraging international power lines with the U.S. The interconnection completed in 1964 was the first power line constructed following that major policy announcement.

THE YEAR 1965**Energy production
in the mid-1960s
compared with
1950**

Growth and change in the energy economy in the period 1965 - 1980, inclusive, can be viewed from a level of activity, measured in terms of production, that had been established in the mid-1960s following many major events of previous years dating, in particular, from the Leduc, Alberta, oil discovery of 1947. The year 1965 started from a statistical base, as measured in January, consisting of the output of the several energy commodities in the previous year. In 1964, crude oil production averaged 752,000 barrels a day, up almost 10-fold from the 1950 level of 79,500 b/d. Natural gas output in 1964 was 1.3 trillion cubic feet, over 15 times greater than the 84.8 billion cubic feet of 1950. Coal production declined from the all-time high (until 1972) of 19.1 million short tons in 1950 to the all-time low (since 1909) of 10.3 million tons in 1962. Then the downward trend was reversed and in 1964 coal production amounted to 11.3 million tons, a figure to be doubled in the following 10 years. Uranium oxide production (U_3O_8), which had only reached the 1000-ton level in the mid-1950s suddenly increased to a peak of 15,892 tons in 1959 and then began a rapid decline to 7,285 tons in 1964, a decline that continued until the latter part of the decade. Electricity generation in 1950 totalled 55 billion kWh; by 1964 it had increased to 140 kWh and would double in the following 10 years.

**Northern Alberta
oil discovery**

The discovery of oil in February at Rainbow Lake in the northwestern corner of Alberta was a major event in the Western Canada oil industry, being the first large discovery in several years. A number of other oil discoveries were made in the same region during 1965 and 1966. The changes then being made in the Alberta proration marketing system favoured high productivity oil reservoirs such as the Rainbow Lake discovery. Canada's liquid hydrocarbon reserves at the end of 1965 totalled 7.7 billion barrels, without taking full account of the Rainbow Lake discovery. That, and other discoveries, raised the reserves total by the end of 1966 to 9 billion barrels, a 24-year supply at the 1966 rate of production. The build-up in oil reserves in the mid-1960s was leading to new efforts to develop larger export outlets in the restricted U.S. market.

**Overland
exemption for
Canada in the
U.S. Mandatory
Oil Import
Program**

On March 26 the Government of Canada, in an Aide Memoire to the U.S. Government, reiterated that it attached the highest importance to the continuance of the overland exemption in relation to oil trade. The overland exemption from the U.S. Mandatory Oil Import Program had been set out in Presidential Proclamation 3279 of March 10, 1959, as amended by Proclamation 3290 of April 30, 1959. At various occasions in the 1960s, the Canadian Government expressed the view that the reasons which prompted the establishment of the exemption for Canadian oil in 1959

remained valid. It continued to be the policy of the Canadian Government to ensure through a reasonable expansion of oil exports, that sales of oil made their proper contribution to Canadian external trade and balance of payments position, particularly in the circumstances of the 1960s when there was a large U.S. surplus in the balance of current payments with Canada. Allowable Canadian oil imports were arranged from time to time on a voluntary restraint basis within the framework of the overland exemption, but throughout the 1960s available Canadian oil exports were generally greater than the imports permitted within the framework of the exemption, the U.S. Government being under pressure from its own domestic industry and from Venezuela for greater markets. However, until 1967, Canadian imports were officially exempt from the U.S. oil import quota which, for Districts I to IV, was 12.2% of estimated U.S. production, with Canadian oil being considered part of U.S. supply in District V (Pacific states).

The Cape Breton coal problem

In April, the federal government initiated a study, by an industrial consultant (J.R. Donald), of the Cape Breton coal problem. The Report of the Royal Commission on Coal, prepared in 1960, had clearly defined the problem facing the Cape Breton coal community. The situation continued to deteriorate in the period 1960-65, with the mines being unable to operate without the infusion of massive amounts of capital, along with continuing heavy subsidies. The issue came to a head early in 1965 when Dominion Steel and Coal Corporation indicated that it wished to withdraw completely from its coal-mining in Cape Breton and offered to sell its coal interests to the federal government. The study initiated in the spring of 1965 was completed in 1966 and a report was tabled in Parliament in October of that year.

Supreme Court reference on west coast offshore

In April, the question of the jurisdiction and ownership of west coast offshore resources was referred to the Supreme Court of Canada. Development of offshore resources had been a subject of federal-provincial discussions for many years. The reference to the Supreme Court was made after considerable federal-provincial consultation. The Prime Minister in July promised that equitable arrangements would be negotiated once the legal situation was clear. (See note for November 1967 on the Court's findings).

Peaceful uses a prerequisite to uranium export approval

On June 3, the Prime Minister announced a policy concerning conditions applicable to the granting of uranium export permits and concerning a uranium stockpiling program. The policy specified that export permits would be given with respect to sales of uranium covered by contracts only if the uranium was to be used for peaceful purposes. Before giving its approval, the federal government would require an agreement with the government of the importing country to ensure, with appropriate verification and control, that the uranium was to be used for peaceful purposes only. Canada had been a member of the International Atomic Energy Agency since its inception, and it had become a fundamental part of the country's general policy to work internationally to avoid the proliferation of nuclear weapons.

**Measures designed
to promote
exports of
uranium**

Regarding the commercial aspects of the Prime Minister's June 3 announcements, two principles were applied that were designed to facilitate uranium exports and to ensure that the requirements of both export and domestic consumers were met in an orderly way. First, Canada was prepared to authorize forward commitments by Canadian producers to supply reactors which were already in operation, under construction, or committed for construction in other countries for the average anticipated life of each reactor, generally calculated for amortization purposes to be 30 years. Second, and in addition, the federal government was prepared to authorize the export for periods of up to five years of reasonable quantities of uranium for the accumulation of stocks in the importing country. In order to avoid any reduction in the existing level of employment and production in the Canadian uranium industry, the new policy also provided for government purchases of uranium for stockpiling to the extent that current sales proved insufficient to achieve this objective during the following five years. Purchases were to be made at a price of \$4.90 per pound of uranium oxide (U_3O_8), and were limited to the amount necessary to maintain an appropriate minimum level of employment and production for companies which had previously produced uranium.

**The uranium
stockpiling
program designed
to keep the
industry viable**

Effective July 1, the federal government commenced its second stockpile purchase program. The quantities to be purchased would ensure that the industry would operate at roughly the 1965 rate for the succeeding five years, July 1, 1965 - June 30, 1970, thereby to provide a nucleus of operations that would allow for more orderly expansion than had occurred in the 1950s. Any outside additional sales reduced the delivery commitments to the federal government by an amount equal to such sales. The two principal producers began making deliveries during the second half of 1965 under terms of the new stockpiling program. The increase in nuclear plant construction contracts in a number of countries was the basis for the very optimistic forecasts of future uranium requirements being made at this time, leading to belief that the drop in uranium production from the 1959 peak of 15,892 tons to 4,307 tons in 1965 marked the end of the decline. The first uranium stockpile was operative from July 1, 1963 to June 30, 1964. Purchases totalled 2680 tons of U_3O_8 , costing \$24.4 million.

**Bay of Fundy
tidal power
study decision**

On September 23, the Prime Minister announced that a detailed and comprehensive study of tidal power sites in the Bay of Fundy would be undertaken. Results of surveys at several locations in 1964 and 1965, and the recent developments in turbine and construction technology, had led to the decision to undertake feasibility studies to determine the possibilities of harnessing the energy contained in the daily movements of tides in the Bay of Fundy where tides up to 52 feet occur. The Bay of Fundy had been investigated 50 years previously but engineering and transmission difficulties proved to be too great. Following preliminary work, the Atlantic Tidal Power Programming Board was established in August 1966 and detailed studies commenced of the physical and economic potential of developing electric power from the tides and transmitting it to markets in Canada and the U.S.

Financial
commitment
to Cape Breton

Pending completion of study of the Cape Breton coal problem, and a decision as to the region's future, the federal government in October gave an undertaking to provide financial assistance for the rehabilitation of existing mines and in the opening up of a new mine at Lingan. However, the money was not allocated until the end of 1966 when steps were taken to establish a Crown Corporation to determine how best the financial assistance could be used in the interests of the region.

1965 electric
power blackout
- subsequent
preventive
measures

On November 9, a major electric power blackout started in Canada and spread to New York and the New England States. Some three days were required to restore electric service throughout the large region that had been subjected to virtually complete electric service interruption. Following this incident, the National Energy Board undertook a study to determine the causes of the failure and means of preventing a recurrence. As a result of this study and extensive studies in the U.S., a system of voluntary regional reliability councils was set up to reduce the possibility of blackouts in one power system cascading into other systems through major interconnections. The NEB and the U.S. Department of Energy continue to be represented by observers at the meetings of the North America Electric Reliability Council, which coordinates the activities of the regions of the continent. Emergency support rendered in either direction across the Canada-U.S. border has proven to be of great value, as was the case in January 1972 when a winter storm caused the loss of two 500 kV supply lines in the Rocky Mountains. A major interruption in the B.C. system was avoided only because of the immediate support rendered by the U.S. members of the Northwest Power Pool. In the reverse direction, Ontario Hydro and Hydro-Québec have several times provided emergency power in the State of New York.

Uranium
stockpile sales

In November, a uranium stockpile disposal procedure was adopted whereby whenever commitments by Canadian industry to the stockpile for any period indicated an annual level of 6000 tons, commitments from the stockpile would be permitted in the order of 25% of the growth which developed above that level, with the precise share of market growth to be determined in the light of market conditions prevailing at the time. Whenever possible, normal trade channels were to be used for sales from the stockpile and sales would generally be made at prevailing market prices.

Announcement re
establishment of
Energy and
Resources
department

On December 17, the Prime Minister publicly announced a major reorganization of responsibilities in the federal government. This announcement stated the Government's intention of establishing a new Department of Energy and Resources, bringing under the aegis of one Minister, as many as possible of the energy and resource functions of the federal government.

Transfer of
responsibilities

On December 22, P.C. Order 1965-2284 was issued under the authority of the Public Service Rearrangement and Transfer of Duties Act, providing for the following changes:

- (a) the Transfer of the Water Resources Branch and Resource Development Branch from the Department of Northern Affairs and National Resources to the Department of Mines and Technical Surveys (which became the Department of Energy, Mines and Resources, effective October 1, 1966);
- (b) The Transfer of the responsibility from the Minister of Northern Affairs and National Resources to the Minister of Mines and Technical Surveys the following Acts and sections of Acts: Atlantic Provinces Power Development Act; Dominion Water Power Act; Canada Water Conservation Assistance Act; International River Improvements Act; and certain paragraphs of the Northern Affairs Act which provided for the transfer of that Department's responsibility for water and resource conservation and development.
- (c) The Transfer of duties, powers and functions from the Minister of Trade and Commerce to the Minister of Mines and Technical Surveys under the National Energy Board Act; Northern Ontario Pipe Line Crown Corporation Act; Canadian Coal Equality Act; Atomic Energy Control Act and thus Eldorado Mining and Refining Limited.
- (d) Pursuant to the Financial Administration Act, P.C. Order 1965-2284 also designated the Minister of Mines and Technical Surveys as the appropriate Minister in respect to the National Energy Board; Northern Ontario Pipe Line Crown Corporation; Eldorado Mining and Refining Limited; Eldorado Aviation Limited; Atomic Energy Control Board; and Atomic Energy of Canada Limited.

**The 1965
energy
statistical
picture**

Statistics available at the end of December showed that the production value of mineral fuels (oil, gas and coal) and uranium in 1965 totalled \$1.15 billion, equivalent to 31% of Canada's total mineral production in 1965. In 1947, the year of the Leduc oil discovery which led to development of the Western Canada oil and gas industry, the comparable percentage was 17%. By 1980, the mineral fuels and uranium were accounting for 59% of the value of Canada's mineral production. Crude petroleum continued as the lead mineral in production value from 1953.

**Oil and gas
discoveries to
1965**

With the discovery of the Rainbow oil field in 1965, the record available at the end of December showed that, since the Leduc oil discovery in Alberta in 1947, which marked the start of the present-day oil and gas industry, some 40 major oil and gas discoveries had been made in Canada. Most of them were in Alberta, with 4 in B.C., 3 in Saskatchewan, and 1 in Manitoba. These were fields with at least 100 million barrels of oil reserves or 750 billion cubic feet of gas reserves. Of the 40 discoveries, 15 were gas and the rest, oil. Most of these discoveries were made in the 1950s. By the mid-1960s the discovery rate had slowed but the Rainbow oil discovery in northern Alberta, where the first major discovery was made in 1955, led to considerable exploration attention in that region.

THE YEAR 1966

Water policy responsibilities

Effective January 1, the Water Resources Branch and the Resource Development Branch were transferred from the Department of Northern Affairs and National Resources to the Department of Mines and Technical Surveys (MTS) by Order in Council P.C. 1965-2284 of December 22 1965, pursuant to the Public Service Rearrangement and Transfer of Duties Act. In June 1971, the units having responsibilities relating to water research, management and conservation, were transferred to the Department of the Environment from the Department of Energy, Mines and Resources (formerly Mines and Technical Surveys) when the Government Organization Act 1970, 1970-71 c. 42 became effective.

Organization study for the Department of Energy, Mines and Resources

In January, following discussion between the Deputy Minister of Mines and Technical Surveys and the Civil Service Commission, an organization study was initiated to provide assistance in determining how the Minister would best take advantage of the new arrangement of energy agencies in his portfolio and what relationship should exist between the various boards and agencies and the new Department of Energy, Mines and Resources when established later in the year. The study was directed to the form of advisory assistance required by the Minister for the efficient administration of the agencies in his ministerial portfolio and, in particular, the roles of the Minister and the Deputy Minister, in respect to such advisory assistance. The study was also to make recommendations concerning the top structure of the Department and the division of labour which would be most appropriate and organizationally sound to meet the Department's objectives. The study defined three major energy roles for the Department: advice to the Minister concerning all aspects of energy sources and energy requirements, and all plans and policies for any specific energy source, in a total energy context of all energy sources; coordination and the prevention of contradictory and overlapping plans and policies; and the development and recommending of national plans and policies for energy in the context of Canada's national energy sources and requirements. The Civil Service Commission study was completed in December, 1966 and reported on the water policy function as well as energy policy. The report recommended establishment of an Energy Policy Group headed by an Assistant Deputy Minister, who was appointed in June 1967. It recommended that the Policy Group should have four senior advisers: oil and gas, electrical, uranium and coal.

Offshore mineral rights jurisdiction

In February, preparations were being finalized for a Reference to the Supreme Court of Canada on offshore mineral rights relative to the west coast of Canada. At the same time, plans were being made to open negotiations with France to establish an acceptable line of demarcation between areas of Canadian and of French jurisdiction over submerged lands in the region of St. Pierre and Miquelon on the east coast.

Nelson River
hydro development
agreement

In February, discussions commenced between the federal and Manitoba governments regarding possible federal participation in Phase I of the Nelson River hydro development. This led to the Canada-Manitoba Nelson Transmission Line Agreement, dated February 15, 1966, between the federal and Manitoba governments whereby the federal government would construct the initial phases of the 550-mile Nelson River transmission system between the Nelson River generating site at Kettle Rapids and the southern Manitoba system near Winnipeg, place them in service and lease them to Manitoba. Manitoba was to repay the \$170 million cost over a period of 50 years at 5 5/8% interest. Years later, in March 1977, an agreement was signed for the provision of loans to assist in the development of regional interconnections and for further assistance in relation to the Nelson River transmission system. The February 15, 1966 Agreement followed Agreements of February 18, 1963 and May 27, 1964 under which the federal government undertook to share equally with Manitoba the cost of investigating the feasibility of developing the hydroelectric potential of the Nelson River.

Energy policy
coordination
role for new EMR

In a letter of March 3 to the Minister of Mines and Technical Surveys, the Prime Minister stated that it had been decided that the Minister (who became the Minister of Energy, Mines and Resources, effective October 1, 1966) was to head a Department (EMR) which would be the agency of energy policy development and coordination and that he would, in addition to the Department, have responsibility for the National Energy Board, Atomic Energy of Canada Limited, Atomic Energy Control Board, Eldorado Nuclear Limited, and the Dominion Coal Board. This decision had been taken because it had become increasingly apparent that the interrelationship of questions in the energy field made it quite undesirable to have activities dispersed among a number of departments and agencies as had been the case in the past. It was understood that the Minister was to rely on the Deputy Minister of EMR to provide the necessary energy policy coordination relative to the Agencies and the Department reporting to the Minister. Accordingly, the Government Organization Bill (see June) was being drafted in such a way as to indicate that EMR would have the responsibility for coordinating advice provided to the Minister in the energy field but the agencies would continue to be advisers within the terms of their legislation. The mandate given to the new Department was very broad, covering energy in all of its forms, to ensure that national developmental policies were related in the most effective and economic fashion to Canadian needs.

Government
Organization Act,
1966 re. EMR

On June 16 the Government Organization Act, 1966 received Royal Assent, making provision for a number of new Departments, including the Department of Energy, Mines and Resources (EMR). Section 29 of the Government Organization Act specifies that the duties, powers and functions of the Minister of EMR relate to energy, mines and minerals, water and other resources; explosives; and technical surveys within the meaning of the Resources and Technical Surveys Act (MTS). The title and section 1 of that Act were repealed and "An Act respecting resources and technical surveys" substituted for it. This Act was further amended in support of the EMR Act to spell out the responsibilities of the Minister "for coordinating, promoting and recommending national policies and programs

with respect to energy, mines and minerals, water and other resources". These responsibilities are defined in Section 8A of the Mines and Technical Survey Act and relate to Section 19 of the EMR Act. (see October below).

Great Canadian Oil Sands project

In June the pipeline to Edmonton from the Great Canadian Oil Sands Limited plant was completed. The \$240 million bituminous sands project in the oil sands area north of Fort McMurray was nearing completion and scheduled to begin commercial production late in 1967, with the synthetic crude being delivered to Edmonton refineries for further processing. The plant was designed to produce 45,000 barrels a day.

Cape Breton heavy water plant

In June, Canadian General Electric Company Limited announced that it would build a 400-ton-a-year heavy water production plant at Point Tupper near Hawkesbury on Cape Breton Island. The \$65 million plant was scheduled to supply heavy water to AECL on the basis of a contract for delivery of 5000 tons of heavy water over 12.5 years at an average price of \$16.15 a pound beginning in 1969. In September AECL was authorized to purchase additional heavy water from Deuterium of Canada Limited when its Glace Bay plant came into production, scheduled for 1967. The outlook for heavy water sales appeared promising with two Canadian reactors under construction in India and Pakistan, one in operation at Rolphoton, Ontario, a second at Douglas Point going into production in January 1967, a third under construction at Pickering, Ontario, and a fourth planned for Gentilly, Quebec.

Nuclear safeguards

In July, Canada made known to the U.S. its willingness to support the application of safeguards to all transfers of nuclear materials and equipment for peaceful purposes, in keeping with its policy of supporting the incorporation of an effective safeguards article in a non-proliferation treaty. Canada was active in negotiations that led to the Non-Proliferation Treaty (NPT) of 1968, ratified in March 1970. The NPT, with 128 participants, was drafted essentially as a bargain among the three major nuclear powers (the U.S., the Soviet Union, and the U.K.), and the non-nuclear countries whereby the latter agreed not to acquire nuclear weapons in exchange for the former negotiating a halt in the nuclear arms race and then pursuing nuclear disarmament.

The role of the federal government relative to the development and regulation of energy

Subsequent to a Cabinet decision of July calling for consideration of possible changes in the B.N.A. Act, a number of studies were undertaken on specific questions of the Constitution. A Sub-Committee on Economic Powers included in the subject matter to be examined in its study of the financial and economic powers granted in the Constitution to the federal government, an inquiry into the role of the federal government with respect to the development and regulation of energy for domestic use or export. The Department of Energy, Mines and Resources undertook this study, in cooperation with the National Energy Board, the Atomic Energy Control Board and the Department of Trade and Commerce. The study was completed at the end of 1967.

A CANDU
for Quebec

In July, in the context of an agreement between Atomic Energy of Canada Limited and Quebec Hydro Electric Commission for construction and operation of a nuclear power station in Quebec, AECL was authorized to proceed immediately with the detailed design and construction in Quebec of a 25 megawatt CANDU-BLW nuclear station. Hydro-Quebec was to operate the station at AECL's expense and buy power from it at a rate consistent with the formula used in the Ontario Hydro/AECL Douglas Point Agreement. When the station had demonstrated its reliability and suitability, in an estimated 3 or 4 years, Hydro-Quebec would purchase it from AECL on terms to be negotiated.

Tidal power
studies

On August 12, an agreement providing for an investigation of the tidal power potential of the Bay of Fundy and setting up the Atlantic Tidal Power Programming Board was signed by Canada, New Brunswick and Nova Scotia. The agreement contemplated a two-year study, at a cost of \$1.5 million, to determine the feasibility of developing tidal power at sites in the Bay of Fundy. Early in 1968, a review and evaluation of the work done to that time showed that in order to provide the best possible basis for a decision on the technical and economic feasibility of tidal power development in the Bay of Fundy, additional studies would be required and, on December 10, 1968, an agreement was signed by the three governments amending the original agreements to extend the period of study to June 30, 1969, and authorizing an additional \$1 million to complete the studies. A report submitted to the three governments in March 1970 concluded that the economic development of tidal power was "not feasible under prevailing circumstances". As recorded in the note for February 1972, this led to further studies.

Federal approval
for TransCanada
Pipelines
U.S. loop

In October, after lengthy debate, TransCanada Pipelines Limited received final approval from the Canadian government for a projected 36-inch diameter pipeline, to be built in cooperation with a United States company, across the northern United States from Emerson, Manitoba to Sarnia, Ontario, with construction of the line to be carried out by a new subsidiary, Great Lakes Gas Transmission Company Limited. Approval of the project was contingent upon guarantees by TransCanada regarding volumes of gas to be transported in Canada, and eventual looping of the original northern Ontario section of the TransCanada system. The northern Ontario section must always carry at least 50% of TransCanada's gas deliveries to eastern Canada. At that time, however, the project was encountering major opposition in hearings before the U.S. Federal Power Commission (FPC), illustrative of the continuing series of issues and problems arising when major decisions were being called for in Canada-U.S. energy relations. The FPC approved the project in June 1967.

EMR established

Effective October 1, the Department of Energy, Mines and Resources was established by the proclamation of the Department of Energy, Mines and Resources Act. R.S.C. 1970, c. E6. The Government Organization Act 1966,

1966-67, c.25, s.31 amended the Department of Mines and Technical Surveys Act by changing its short title to "Resources and Technical Surveys Act". The Government Organization 1966, s. 41 changed the name "Department of Mines and Technical Surveys" to "Department of Energy, Mines and Resources" in all Acts, or portions of Acts in which the former appeared.

**Plans announced
for EMR's new
policy functions**

On October 19 the Minister of Energy, Mines and Resources (Honourable Jean-Luc Pepin) announced organization plans for his new Department which incorporated major energy and water policy responsibilities. The Department, successor to the Department of Mines and Technical Surveys, consisted of four groups under the direction of the Deputy Minister (C.M. Isbister): research, mineral development, water management, and energy development, each headed by an Assistant Deputy Minister. The establishment of EMR implemented the Prime Minister's (L.B. Pearson) announcement of December 1965 and the enabling legislation proclaimed on October 1, 1966. In making his announcement, the Minister stated that "the purpose of this change was to place within a single structure as many of the resource and energy functions of the federal government as is practical and desirable, and to coordinate the activities of the several government departments and agencies directly or indirectly involved in these fields." In outlining the new responsibilities for EMR, the Minister noted that "the Assistant Deputy Minister-Energy would serve as adviser on overall plans and policies relating to energy sources and requirements, and would assist the government in taking steps in the field of energy that would benefit the national economy."

**TransCanada
Pipeline keeps
commitment to
Canadian route**

In October an agreement between TransCanada Pipelines Limited and the federal government was reached whereby the company undertook to meet at least 50% of Eastern Canada's gas requirements through deliveries via the northern all-Canadian route. It was also agreed that this percentage would increase to 60% by the year 1976. Hence, TransCanada would continue to enlarge the carrying capacity of its northern line either along its present route or possibly via other routes thereby making gas available to additional communities. This undertaking was in fulfillment of the commitment noted above in the October item on TransCanada's U.S. expansion.

**CANDU sales
initiatives**

During 1966 a number of initiatives were being taken towards the sale of CANDU reactors, heavy water and uranium to other countries. In October negotiations were underway with Britain concerning safeguards to be applied to new contracts for the future sale of uranium from Canada to Britain. At the same time, Finland was being assured of the availability of heavy water and uranium from Canada in relation to a proposed CANDU reactor sale to that country, subject to the necessary safeguards and within the framework of announced policy. Negotiations were also underway regarding a possible sale of a CANDU nuclear power station to Yugoslavia and to several other countries.

Donald report on
Cape Breton coal
problem

In October, the report by J.R. Donald on the Cape Breton coal problem was tabled in the House of Commons. The Report of the Royal Commission on Coal, prepared in 1960, had described the plight then facing the Cape Breton coal mining communities and the situation had continued to deteriorate in the 1960s. In the period 1960-65, the mines reached a stage where they could no longer operate without the infusion of massive amounts of capital, along with continuation of heavy subsidies. Operating costs rose sharply and the competition of other fuels became more acute. The Donald study, initiated in April 1965, recommended that during the following 15 years the subsidies supporting uneconomic coal production should be shifted to other forms of industrial development and economic activity in Cape Breton. To achieve this, Dr. Donald recommended the formation of two Crown corporations, one being responsible for the rehabilitation of the DOSCO coal mines at reduced levels of production and the other being charged with the simultaneous stimulation and development of the regional economy. (See Cape Breton note for December 1966).

Improved uranium
market prospects

In December Ontario Hydro announced uranium purchase contracts with Canadian uranium producers, covering its uranium supply to the end of 1983, involving total deliveries of 7,600 tons of U_3O_8 . This contract and the completion of the 8,000 tons of U_3O_8 contract with the U.K. Atomic Energy Authority, marked the beginning of apparently improved prospects for Canadian uranium producers.

The first
proposal for a
Chicago "Loop"
on the
Interprovincial
Pipe Line System

On December 22, the Presidents of the four largest oil companies in Canada and of Interprovincial Pipe Line Company presented a brief to the Minister of EMR, and other senior Ministers, seeking the support of the federal government to facilitate the construction of a loop line of Interprovincial's Lakehead system through Chicago to the Detroit and Sarnia areas. The company officials noted that the existing facilities of Interprovincial were fully used and that the greatly increased demand in the U.S. markets occurring in 1967 would be followed by further increases in 1968. This would be the time for Interprovincial to make the additional investment necessary to loop through Chicago, rather than enlarging the existing Lakehead system, and thereby gain an entry for Canadian crude into the large refining area of Chicago. This new line would also provide some insurance of market protection which would likely be needed when the U.S. completed the planned Capline from the southern U.S. to Chicago in 1969. The companies were prepared to proceed with the Chicago "Loop" if clearances could be effected with U.S. authorities. They needed such assurances in view of the possibility that the U.S. government might otherwise introduce more restrictive measures into its Oil Import Control Program which would invalidate investments Interprovincial would have made in new pipeline facilities to Chicago. This proposal by the oil companies then became the subject of detailed study by the federal government and negotiation with the U.S. government.

A new plan for Cape Breton to involve a cut-back in coal mining and new economic activities

On December 29, the Prime Minister issued a policy statement on Cape Breton coal, advising that the federal and Nova Scotia governments had reached an agreement on basic points of policy concerning the future of the Cape Breton coal industry and economy. Assured of the participation of the Nova Scotia government, the federal government was prepared to ask Parliament to establish a Crown Corporation to acquire, reorganize and manage the coal mining interests of the Dominion Steel and Coal Corporation (DOSCO), and simultaneously to help promote and finance the development of modern industry on Cape Breton Island. For those purposes, the federal government was prepared to make a capital contribution of \$45 million for the rehabilitation and operation of the mines (about \$25 million) and for the development of new industry (about \$20 million). In place of the existing system of providing subsidies to a private corporation on its individual coal sales, the federal government would request Parliament to provide funds to the Crown Corporation to enable it to mine and market its coal to best advantage. The rationalization of the Mines, and related cut-back in production to about 2 million tons a year, was to be related to the success in the introduction of new industries. The initiatives announced at this time followed a special study by an independent consultant (J.R. Donald) of the Cape Breton coal problem, commissioned in April 1965, with recommendations being presented to the federal government in October 1966. The Donald report recommended that investment in uneconomic coal production in Cape Breton be shifted during the subsequent 15 years to other forms of industrial development and economic activity in the region, and that this transfer of emphasis be supported out of an estimated \$400 million which the coal mining industry in Nova Scotia might otherwise require in the form of federal subventions over this period.

First continental shelf drilling east coast

The first deep drilling program on Canada's continental shelf was carried out on the Grand Banks, off the east coast, in 1966. By December one well had been drilled 100 miles offshore and a second, 175 miles offshore. This was followed in 1967 with a deep exploratory well in the Sable Island area.

Uranium outlook affected by U.S. enrichment embargo

At the end of December, uranium production statistics for 1966 showed that Canadian uranium production totalled 3,822 tons of uranium oxide (U_3O_8) in the year. Annual production had declined continuously since the peak year of 1959, when 15,892 tons were produced. There was a conviction in 1966 in Canada, and in other countries, that the uranium industry was on the verge of entering a new period of development. Early in the year it was predicted that nuclear plant capacity by 1980 in the non-communist world would increase to about 225,000 MWe and that uranium production would be required at an annual rate of 65,000 tons of U_3O_8 to provide the fuel necessary to support that capacity. Because many nuclear power plant plans were cancelled or delayed in the 1970s actual production in the non-communist world in 1980

was only 39,000 tons of U_3O_8 , little more than one-half the 1966 forecast. However, 1966 was a promising year for the Canadian uranium industry, with the announcement of two significant commercial contracts. In August a contract was negotiated with the U.K. Atomic Energy Authority for the sale of 8000 tons of U_3O_8 (increased in May 1967 to 10,000 tons), to be delivered over the period 1973 - 1980. In December, contract negotiations with Ontario Hydro were announced for a total of 7,600 tons of U_3O_8 to be delivered over the period to 1983. Market growth continued in 1967 based on four additional contracts, with Japanese and West German utilities. However, in December the United States Atomic Energy Commission officially imposed an embargo on delivery to USAEC enrichment plants of uranium of foreign origin where the enriched material was intended for use in domestic nuclear facilities. This embargo had been informally imposed since August 1964. It was not until late 1974 that the USAEC announced that the embargo would be lifted in stages, which would not start until 1977. This had a negative impact on Canadian uranium marketing in the 1970s.

THE YEAR 1967**First nuclear power - Douglas Point**

Canada's first full-scale nuclear power station produced its first electricity on January 7. The 200-MWe Douglas Point Nuclear Power Station, on the east shore of Lake Huron, commenced production of electricity at about 6 mills per kilowatt hour. Preceding Douglas Point was the 20,000 kw Nuclear Power Demonstration Plant (NPD) which began service in 1962 at Rolphton, Ontario. About at this time, Canada completed financing arrangements with India, allowing it to go ahead with its second Canadian nuclear power reactor while another Canadian nuclear plant was under construction in Pakistan.

Chicago "loop" on IPL proposed

In January, it was decided to undertake technical discussions with the U.S. on the proposal to construct a "loop" pipeline from the Interprovincial Pipe Line system through Chicago to enlarge the system's capacity to deliver western Canadian crude oil to Eastern Canada as well as to the export market.

Nelson River power development

In January, authorization was given, subject to formal agreement with Manitoba and authorization of funds by Parliament, for a federal investment of approximately \$170 million in transmission facilities associated with Phase I of the Nelson River Power Development Project in Manitoba. The Agreement with Manitoba was signed in July 1967.

Quebec natural gas market

In March, the Quebec Natural Gas Corporation became a subsidiary of Northern and Central Gas Company which greatly increased its ability to expand natural gas services to Quebec as the province's sole distributor. Western Canada natural gas had become a contributing energy source in Quebec since it was first introduced in 1958, but was only accounting for 3.5% of the province's energy supply. This merger provided a base for a more significant energy supply role.

Pickering nuclear plant expansion

In April, the Atomic Energy Control Board granted construction permits for two additional 540-MWe units at Ontario's Pickering site. Construction of the first two units was well underway, with completion scheduled for 1970 and 1971. At the same time, construction was proceeding on Quebec Hydro's 250-MWe nuclear station at Gentilly.

First heavy water plant

Canada's first heavy water production plant, at Glace Bay, Nova Scotia, was officially opened in May. A second heavy water production plant was being constructed at Point Tupper on the Strait of Canso. Both plants were scheduled to produce 400 tons of heavy water a year but long delays were encountered.

Coal subventions in Western Canada

In May, Coleman Collieries qualified for subventions of a maximum of \$1.3 million in 1967-68, declining to \$1.0 million in 1970-71 and terminating in 1971-72. Subventions were to cease as soon as shipments to Japan by Coleman reached 1 million long tons per annum, or total shipments from the East Kootenay area reached 2 million long tons, whichever occurred first. At this time, it was decided that no subventions would be given to any coal company not then being subsidized. The coal subvention program was terminated in 1970.

Cape Breton
Development
Corporation
established

In June, the Premier of Nova Scotia signed an agreement with the federal government on the establishment of a Crown Corporation to acquire the interests of the major coal producer (DOSCO) in the Sydney coalfield and to promote the development of industry in Cape Breton Island. Steps were taken to proceed with a bill in Parliament to establish the Corporation. In July, the Minister of EMR was named the Minister responsible for the Corporation -- the Cape Breton Development Corporation. This initiative to establish a Crown Corporation was taken following a detailed study of the Cape Breton coal problem in 1966 by J.R. Donald and his report to the federal government. In place of the existing system of providing subsidies to a private corporation on the marketing of coal, funds were to be provided to the new Crown Corporation to enable it to mine and market coal to best advantage and to relate the retrenchment of mines to the success of the introduction of new industries in a restructuring of the Cape Breton economy.

ADM-Energy
appointed in
EMR

In June, an Assistant Deputy Minister for Energy was appointed in the Department of Energy, Mines and Resources (EMR). This appointment followed from the Government Organization Act, 1966, which, among other matters, established the Department of Energy, Mines and Resources, with energy policy responsibilities. As head of the new energy group in EMR, the Assistant Deputy Minister, Energy, was given the responsibility to advise on the development of energy policies on a national level. His group, later established as a Sector, was given policy coordination responsibilities relative to oil, gas, coal, hydroelectricity, nuclear power and all other sources of energy, in the context of domestic and international trends and developments.

Second trans-
Canada gas line
to Eastern
Canada, via
U.S.A.

In June, the U.S. Federal Power Commission approved the construction in the United States of the Great Lakes Gas Transmission Company Limited pipeline project from Emerson, Manitoba to Sarnia, Ontario. This provided additional gas transmission capacity in the TransCanada PipeLine system, as previously approved by the NEB, for delivery to Eastern Canada markets and for the export market. The new line provided capacity additional to that of the main line along a northern Ontario route, as built in the latter part of the 1950s.

Nelson River
transmission
system rental
agreement

On July 12, the federal government signed an undertaking with Manitoba to construct and own a high voltage direct current transmission system from the new Kettle Rapids power site on the Nelson River to Winnipeg. Twin lines, to be leased by Manitoba Hydro, were designed to carry direct current over the system with an initial capacity of 1000 megawatts and completion by the end of 1971. This would form part of phase one in the development of the Nelson River's power potential of some 5,000 MW. Atomic Energy of Canada Ltd. was responsible for construction of the transmission system, which would have an ultimate capacity of 3000 MW. Under the agreement signed at this time, the federal government was to recover its \$170 million investment plus interest at 5 5/8% over a period of 30 years.

Columbia River
Treaty Dam

The first completed project of the Columbia River Treaty, the Duncan Dam in B.C., was placed in service on July 31. The construction contract had been awarded in October 1964.

Report on long
distance
transmission
and a national
transmission
network

In July the Federal-Provincial Working Committee submitted its report to the Federal-Provincial Ministerial Committee on Long Distance Transmission, under the title of "Regional and National Electric Transmission Systems for Canada-Stage II Assessment". The Working Committee had been established in March 1962. Following preliminary assessments in Stage I and completion of a report in January 1964, the Committee proceeded with Stage II involving detailed analyses of technical and economic factors related to long distance transmission interconnections leading possibly to a national power network. The Stage II assessment concluded that the indicated benefits of a national power network were marginal and did not warrant a further major study at that time (1967). However, it was recommended that the Working Committee be retained to consider steps which could be taken towards stronger regional ties which could ultimately lead to a national power network, and to reassess at appropriate intervals the case for reviewing the benefits of national transmission network.

"Chicago Loop"
on the IPL
system

In August, the Minister of EMR was authorized to conclude with U.S. authorities an agreement on principles concerned with the looping through Chicago of the facilities of Interprovincial Pipe Lines Limited -- the "Chicago Loop".

First oil sands
production

In September, the \$230 million Great Canadian Oil Sands project in the Fort McMurray area of northern Alberta went into production after four years of development work. This project provided the first access to Canada's huge oil sands resources. The design capacity was 45,000 b/d of synthetic crude oil.

Canada-U.S.
in agreement on
restraint of
oil exports

In September, Canada and the United States reached agreement on crude oil deliveries from Canada into U.S. Districts I to IV in the context of the plan to construct the "Chicago Loop" of the Interprovincial Pipe Line system. The agreement took the form of a Note, in which Canada undertook to ensure, short of imposing formal export controls, that exports of refinery feedstock would not exceed 280,000 b/d in 1968 with increments of 26,000 b/d annually through 1971 into Districts I to IV, and no sales would be made in the Chicago area prior to 1970. Between 1962 and 1965, Canadian oil exports to Districts I to IV were voluntarily restrained in order to assist achievement of U.S. policy objectives in respect of its oil import program. Canada had received an overland exemption from the U.S. Mandatory Oil Import Program in 1959. The administration of restraint was managed by the NEB in cooperation with industry on both sides of the border. There were no export targets for 1966 and 1967 because of supply bottlenecks in the U.S. oil industry; Canadian crude made good the deficiencies.

Negotiation of
the "Chicago
Loop"

Late in 1966, the Canadian oil industry proposed that the, "Chicago Loop", a loop of the existing Lakehead oil pipeline of the Interprovincial Pipe Line system between Superior and Sarnia, be routed via the Chicago refining complex. This would preserve the market for Canadian oil in the U.S. midwest, which would otherwise be lost if instead new pipelines were built from Louisiana. The agreement reached in September, 1967 regarding the undertaking on Canada's part to restrain its oil exports followed extensive negotiations which commenced early in 1967 concerning the terms on which construction of the "Chicago Loop" would proceed. The U.S. wanted an undertaking that its markets would not be flooded while Canada needed the assurance that it could reasonably expect a certain minimum throughput to export markets in the early years of the Chicago line. The 280,000 b/d agreement represented the compromise reached at the time. The following six years saw major changes in oil supply/demand relations on both sides of the border, leading to oil export controls by Canada in 1973 because of too great a U.S. demand for Canadian crude oil, and the relaxation of U.S. import controls.

Westcoast 22¢
gas export
contract

In September, Westcoast Transmission Company Limited was proceeding with an application to export further supplies of natural gas to the Pacific Northwest area of the United States. Its application included pricing arrangements designed to correct the situation created by the original contract signed with Pacific Northwest Pipeline Corporation in December 1954 for 300 million cubic feet of gas a day over a period of 20 years at a border price of 22¢ per thousand cubic feet. This contract became known as "the bargain of the century". At the same time, Westcoast was selling gas to the distributor in the Vancouver area at 32¢/Mcf. However, without the export contract the Westcoast gas pipeline from northeastern B.C. gas fields could not have been built, a classic example of the importance of the export market in providing sufficient market volumes for the start-up of new resource development projects.

Jurisdiction
over uranium
exploration
and mining

In September, a resolution was approved at the Provincial Mines Ministers' Conference requesting the federal government to restore jurisdiction to the provinces in respect to uranium and thorium, except in matters of international sales and exports. The issue of jurisdiction and control related to authority under the Atomic Energy Control Act to administer exploration and mining permits because of the military strategic importance of these minerals. The issue continued to be unresolved.

DOSCO steel
plant abandoned
by Hawker
Siddeley

In October, following announcement by the Hawker Siddeley Group Limited that it intended to close its DOSCO steel plant at Sydney, Nova Scotia, study of the prospects for continued steel production at Sydney was considered by the federal government in the context of the primary responsibility of the provincial government and of the obligations of the company. An offer was made to the Nova Scotia government to assist it in a study of the economic viability of the plant.

**Dominion Coal
Board
dissolution**

In October, the federal government approved in principle the dissolution of the Dominion Coal Board and the absorption of its residual functions within the appropriate department or agency.

**Repeal of the
Northern Ontario
Pipe Line Crown
Corporation Act**

In November, a bill was prepared for introduction in the Senate to provide for the dissolution of the Northern Ontario Pipe Line Crown Corporation which had been formed in 1956, with the enactment of the Northern Ontario Pipe Line Crown Corporation Act, to assist in the completion of TransCanada Pipeline system for the delivery of Alberta natural gas to the Ontario market.

**Supreme Court
opinion on B.C.
offshore**

In November, the Supreme Court of Canada provided an authoritative clarification of the legal position with respect to the areas off the west coast of Canada lying outside the harbours, bays and estuaries which were regarded as inland waters at the time British Columbia entered Confederation. The Court opinion was that the federal government is entitled to proprietary and other rights in those areas offshore from historic boundaries of the province, which were generally defined as the ordinary low-water mark. The Supreme Court thus confirmed the view previously held by law officers of the Crown that all rights held or acquired by Canada in submerged lands lying outside the boundaries of any province accrue to Canada as a whole.

**Guidelines for
uranium export
sales**

In November, following a general review of uranium policy, new guidelines were being developed which would provide the degree of control necessary in an expected period of greatly increased demand for Canada's uranium resources. The guidelines proposed for a new uranium policy statement, further to the Prime Minister's statement of June 3, 1965, were directed to the allocation of uranium exports to foreign countries under a system of increased scrutiny and control, the maintenance of adequate reserves and production capability to meet foreseeable domestic requirements, provision for review of proposed export contracts and for export controls, and assurance that Canadian uranium and thorium would be used only for peaceful purposes. In June 1969, a statement was issued by the Minister of EMR covering these and other policy matters relative to future sales of uranium to other countries.

**Uranium
reserves**

In December, an estimate of world uranium reserves was published jointly by the European Nuclear Energy Agency and the International Atomic Energy Agency. The study showed that Canada, South Africa, and the United States controlled almost 85% of the 700,000 tons of uranium oxide (U_3O_8) as reasonably assured reserves available in the non-communist world, and recoverable at prices up to \$10(US) a pound of U_3O_8 .

**Preparations
to terminate
Dominion
Coal Board**

In December, preparations to terminate the Dominion Coal Board were commenced, with approval to draft legislation to repeal the Coal Production Assistance Act and the Coal Equality Act which would then become part of the legislation to terminate the Board.

Rationalization
of the Minto,
N.B. coalfield

A decision was made in December to have the Minister of Energy, Mines and Resources negotiate with the Government of New Brunswick whereby the federal government would grant N.B. up to \$20 million in return for which the province would assume responsibility for coal subventions which would have been payable in respect of coal mined in the Minto area of New Brunswick. The payment was to commence on April 1, 1968, with four equal annual amounts thereafter. This financial assistance was also to be directed to the phasing-out of coal production in the Minto-Chapman coalfields and to new industrial development in that area. (In March 1968, the amount of the grant was set at \$19.6 million, instead of \$20 million.)

1967 Middle
East petroleum
emergency and
other Suez
Canal crises

By December, the flow of oil to world markets had been restored following the cutback resultant from the Middle East petroleum emergency earlier in the year when the Suez Canal was closed, the Trans-Arabian pipeline and other Middle East pipelines were cut off and some crude oil production was interrupted. This emergency marked the first time when both production and transportation facilities were closed down. The 1951 crisis had resulted only in the loss of Iranian crude; the Suez Crisis of 1956-57 had closed the Suez Canal and some pipelines. The emergency of 1967 was largely overcome by the end of the year and, while the Suez remained closed until 1975, production was restored and the oil was moved around the southern tip of Africa by the new supertankers that were just coming into use. As in the earlier crises, the major increment in oil supply originated in the United States, a situation, however, that did not apply in the oil crises of 1973-74 and 1979.

Panarctic
Oils Ltd.

In December, the federal government announced plans for joint exploration programs in the Arctic Islands with 20 oil and mining companies. This partnership led to the formation of Panarctic Oils Limited, with 45% federal government participation. The government undertook to make a \$9 million grant to Panarctic over a three-year period for a \$20 million exploration program. In return for this grant, the government received a 45 per cent equity in Panarctic and thereby became a major stockholder in the venture. Exploration permits for the Arctic Islands were first issued in 1960, after the federal government established its Canada Oil and Gas Land Regulations, and the first exploration well was spudded in September 1961 on Melville Island and completed in April 1962. The first gas discovery was made in mid-1969 and the first oil discovery in the Arctic Islands region was made in 1972, both by Panarctic.

Crude oil
production

By the end of December, crude oil production in Canada for the year 1967 had averaged 1.04 million barrels a day, the first year in which the average daily output had exceeded one million barrels.

THE YEAR 1968**Cape Breton
financial
assistance**

In January, the federal government decided to provide temporary assistance to Nova Scotia in relation to the Sydney Steel Plant, but not beyond April 30, 1968, and it would not assist Nova Scotia financially in acquiring the assets of the Sydney Steel Plant from DOSCO. However, other forms of assistance were under consideration including a deferment for two years of Nova Scotia's obligation to provide \$10 million to the Cape Breton Development Corporation for industrial development. A grant of up to \$2 million to help offset operating losses of the Sydney plant in the period April 1968 to April 1969 was also being proposed. Assistance was provided for a study to determine the viability of the Sydney Steel Works.

**IPL "Chicago
Loop" approved**

In January, Interprovincial Pipe Line (IPL) was given approval by the United States government to construct border-crossing facilities to its new Lakehead Pipeline facilities which would run south of Lake Michigan rather than along its established route across the Straits of Mackinac. The company then proceeded to construct a 34-inch line from Superior, Wisconsin to Chicago where it connected with other systems to reach the original Interprovincial line to Sarnia. This became known as the "Chicago Loop". It raised the IPL capacity entering the United States to 820,000 barrels a day from the 1967 level of 536,000 b/d, thereby strengthening the Canadian oil industry's link with the U.S. market as well as providing increased delivery capacity to eastern Canada.

**Uranium sales to
Japan and
Germany**

In February, Canadian government approval was given for the completion of a contract for Canadian uranium between Denison Mines and Japanese interests, with the uranium to be shipped under the Japanese-Canadian Safeguard Agreement. In March, approval was given in respect of export contracts between Eldorado Mining and Refining Limited and Rio Algom Mines Limited and Japanese interests. In April, approval was given for completion of a uranium export contract between Eldorado Mining and Refining Limited and German interests for the sale of up to 1000 tons of U₃O₈ over a 12-year period from January 1, 1968. Early 1968 was a period of considerably improved prospects for the Canadian uranium industry after continuous decline since the loss of U.S. markets early in the decade.

**Westcoast 22¢
gas export
contract**

In February, the NEB approved a revised gas export contract between Westcoast Transmission and ElPaso Natural Gas which improved the 22-cent per Mcf contract signed in 1954.

**Western Canada
Coal export
contracts**

In February, Crows Nest Industries Limited sold its coal operation in southeastern B.C. to Kaiser Resources Ltd. and that company completed a contract for the export of 45 million tons of coking coal to Japanese steel companies over a period of 15 years beginning in 1970. This export

sale, along with export contracts signed by Luscar Ltd. in April and McIntyre Coal Mines Ltd. in December with Japanese purchasers, marked 1968 as a turning point in the history of the Western Canada coal industry. As a result of these, and other export contracts, coal exports increased from 1.4 million short tons in 1968 to 8 million tons in 1971.

Syncrude oil sands decision

In February, the Alberta government raised oil production limits for Athabasca oil sands production from 45,000 barrels a day to 150,000 b/d. As a result of this, and incentives available at the federal level, Syncrude Canada Ltd. reapplied to the Alberta Oil and Gas Conservation Board for a permit to build an oil sands plant near Fort McMurray with a capacity of 80,000 b/d of synthetic oil and speciality products. The company agreed not to start up the plant until 1972-73 in order to avoid pre-empting the U.S. market held by Alberta crude oil producers. Time was also needed to assess the potential impact that future Prudhoe Bay oil would have on the U.S. market. The Alaska oil discovery had created uncertainty regarding future export opportunities for oil sands and heavy oil operations as well as for traditional oil producers.

DEVCO acquires Cape Breton coal mines

Following the establishment of the Cape Breton Development Corporation (DEVCO) in 1967 (a federal Crown corporation), negotiations led to an agreement, effective March 31, 1968, whereby DEVCO acquired the coal mines and related interests of Dominion Steel and Coal Corporation Ltd. (DOSCO) in Cape Breton while, at the same time, the Nova Scotia government assumed complete responsibility for assistance to independent coal mines in Nova Scotia. DEVCO also had the broad objectives of helping to promote and finance development of industry in Cape Breton while phasing down the coal mining operations, thereby to re-structure the Island's economic base.

40 years of federal support for Cape Breton coal

The takeover of the Sydney, Cape Breton, collieries by DEVCO, effective March 31, marked the end of a 40-year period in which Cape Breton coal mines had been supported by transportation subventions. Over that period, total subvention for the marketing of coal from these mines amounted to \$238.6 million on a subvented volume of 58.7 million tons. Such additional forms of aid as payments under the Canadian Coal Equality Act and the Atlantic Provinces Power Development Act, together with wartime expenditures on grants and subsidies during the period 1940-45, raised total assistance to the order of \$300 million. This did not include the benefits accruing under the Maritime Freight Rates Act or from federal support of R&D related to coal resources.

Final federal grant for N.B. coal

In March, under terms of a federal-provincial agreement, the New Brunswick government assumed responsibility for rationalization of coal mines in the Minto area 35 miles east of Fredericton, in return for a federal grant of \$19.6 million payable over a 4-year period. It was understood that this would release the federal government from any future responsibility with

respect to subsidization of the New Brunswick coal industry. Part of the federal grant was to be used to encourage the development of new industry in the Minto area. Federal subsidies had been rising rapidly and totalled \$2.4 million in 1967-68.

**Eldorado's
hexafluoride
plant**

In May, Eldorado Mining and Refining Limited, a federal Crown company, decided to proceed with the construction at its Port Hope plant of refining facilities to produce uranium hexafluoride (UF₆), with production scheduled to commence in 1970 at 2500 tons per annum. This provided for the upgrading of some of Canada's uranium production prior to export.

**Nuclear plant
export promotion**

In May, AECL was given authority to embark on a vigorous nuclear power plant export sales effort, with responsibility for all aspects of marketing and, where required, acting as prime contractor on nuclear power generating stations.

**Roberts Bank
coal terminal**

The National Harbours Board was authorized in August by the federal government to implement its Memorandum of Understanding with Kaiser Coal Limited regarding the operation of bulk terminal facilities at Roberts Bank, near Vancouver. The terminal facilities were to be operated in a nondiscriminatory and competitive manner, and to be available at all times to other coal shippers on the same basis as for Kaiser.

**Western Canada
coal subsidies
to be phased out
by 1971**

In September, the Minister of Finance announced that the federal government had provided over \$25 million in subsidies in the previous nine years in order to maintain a viable coal industry in Western Canada. For the year ending March 31, 1968, subsidies totalled \$3.17 million. The government had decided that, with the good progress in development of coal markets in Japan, the industry had expanded to the point where subsidies would no longer be available after 1971 for the Western Canada coal industry.

**Peace River
power
development**

In September, the Portage Mountain hydroelectric development on the Peace River (W.A.C. Bennett Dam and the associated Gordon M. Shrum Generation Station) produced its first commercial power. The project, located on the Peace River near Hudson Hope in northeastern B.C., had initially been announced by the B.C. government in October 1957. Little progress was made until the B.C. government acquired the privately owned B.C. Electric Company and the Peace River Power Development Company in August 1961. The project then proceeded under the direction of the B.C. Hydro and Power Authority, a consolidation of the B.C. Electric Company and the B.C. Power Commission, the latter being the utility which supplied power in the other areas of the province. The project delivers power to the lower mainland and Vancouver over 600 miles of 500 kv transmission lines.

**Gas export
increases**

In October, Alberta and Southern Gas Co. Ltd. received approval to increase its gas exports to the United States by an additional 200 million cubic feet a day. Westcoast Transmission Company Ltd. had received a similar

approval in February. The outlook for natural gas at the end of 1968 was decidedly expansionary based on the development of new sources of supply and strong domestic and export demand.

Improved outlook
for uranium

In October, Rio Algom Mines Limited announced that it would spend \$26 million in the Elliot Lake area reactivating its mining operations, a sign of improved prospects for the uranium industry which had been in a state of decline since losing its U.S. markets early in the decade. Exploration activity in Canada in 1968 exceeded levels reached in the peak years of the 1950s, a further sign of improved prospects. The export contracts signed with Japanese purchasers by Rio Algom and Eldorado earlier in the year had given promise of new market growth.

Review of the
NOP required

In October, the federal government concluded that an overall assessment of the oil marketing situation, both domestic and export, was required following eight years of operation of the national oil policy (NOP), as defined and initiated in 1961. There had been recent high rates of growth in oil exports to the United States which had raised concerns in that country. At the same time, there was increasing pressure from oil imports, via eastern Canada, in the Ontario market which had been reserved for Western Canada crude oil by means of a voluntary program under terms of the NOP since 1961. A decision was taken in October to examine the impact upon the NOP of the developing export and import situation.

Columbia River
Treaty dam

The Arrow Lakes dam was completed and became operational under the Columbia River Treaty on October 10, 1968. On that date Canada received \$52.1 million (U.S.) from the United States for flood control benefits under terms of the Treaty. Construction on the Arrow project had commenced in the spring of 1965.

Douglas Point
heavy water
plant - Bruce A

In October, AECL was authorized to construct heavy water production facilities at Douglas Point, Ontario, with a capacity of 400 tons per year and at an estimated cost of \$65 million. Before proceeding, assurance was to be obtained from Ontario Hydro that it would proceed with four 750 MWe nuclear reactors at that site and that heavy water would be purchased by Ontario Hydro from the AECL heavy water production plant.

Offshore
negotiations

In November, the federal government decided to give consideration to various forms of pooling of all offshore revenues with the provinces. The purpose was to determine an equitable and acceptable basis upon which the provincial share of the national pool could be subdivided among individual provinces, having in mind the national asset principle and allowing for special recognition of the claims of the coastal provinces.

Financing of
CANDU sales to
Roumania

In December, the Export Credits Insurance Corporation was authorized to negotiate financing up to Cdn \$65 million to cover the sale to Roumania of nuclear plant equipment and services, including heavy water and fuel, for a 300 MWe nuclear power plant and fuel fabrication

facilities. The terms were not to exceed 20 years, including a 5-year grace period and an interest rate of 6% per annum. AECL was authorized to continue active negotiations with Roumanian interests. Work on the Cernavoda project commenced in the early 1980s, with two 600 MW reactors scheduled for completion by 1990.

**Federal offer to
share offshore
resource
revenues**

On December 2, the Prime Minister announced in the House of Commons a plan for sharing of offshore revenues. Provinces would receive half of the revenues accruing from offshore mineral resources located seaward of "mineral resource administration lines" established off provincial coasts. Landward of these lines, adjacent provinces would receive all of the mineral resource revenues. The question of the basis upon which the provincial share of revenues would be divided was left open to suggestions by the provinces. The federal position, based on the Supreme Court decision of November 1967 on the British Columbia offshore reference, was that the federal government is entitled to the proprietary and other rights in areas offshore from historic boundaries. The proposed administration lines provided a means of defining provincial areas of jurisdiction, rather than using the low-water mark.

**Task Force on
Northern Oil
Development
established**

In December, the Task Force on Northern Oil Development was announced in the House of Commons. Its purpose was to keep the federal government advised on all matters relative to northern oil development and to make recommendations thereto. With the discovery of oil at Prudhoe Bay, Alaska, as announced in July, exploration activity in Canada's far north was greatly expanded. It soon became apparent that the federal government would be faced with many policy questions relative to northern oil and gas activity. The Task Force was established to provide advice on these questions. The Task Force was chaired by the Deputy Minister of EMR and had senior representation from that Department and the Departments of Indian Affairs and Northern Development, Environment, and Transport, and the National Energy Board. It reported to Cabinet over the signatures of the Ministers of those Departments. The Task Force became the focal point in the succeeding years, into the mid-1970s, for government study and policy recommendations on all matters relative to northern oil and gas development and related pipeline planning. If operated through five committees: Pipeline Engineering, Transportation, Environmental-Social, Marketing, and Economic Impact.

**Proposed Yukon
River power
development**

During the 1960s a number of studies were undertaken to assess the hydroelectric power potential of the Northwest Territories and the Yukon. In 1968 special consideration was being given to potential developments of the Upper Yukon River and a power market study was initiated under terms of notes exchanged between Canada and the U.S. in December. Among the alternatives under consideration was a major system plan involving 17 projects, with the system having an annual firm energy potential of 37.7 billion kwh. However, preliminary assessments concluded that development of the Upper Yukon would have significant environmental effects on downstream developments of the river in Alaska, particularly in

relation to the proposed Ramparts Dam scheme which the U.S. government had concluded was not the most desirable means of promoting the development of the Alaskan economy. The Upper Yukon proposals did not go ahead and the Yukon's main hydroelectric power sources continued to be the Northern Canada Power Commission's power developments near Whitehorse on the Yukon River and near Mayo on the Mayo River.

THE YEAR 1969

Canada-U.S. offshore boundary disputes

In January a decision was taken to initiate negotiations as soon as possible with the U.S. for the purpose of delimiting offshore boundaries in the Juan de Fuca Strait on the West Coast and the Gulf of Maine region on the East Coast, with consideration also to be given to the Beaufort Sea region. The equidistance principle was to apply, as set out in the Convention on the Continental Shelf. Canada was not in favour of suspension of exploration activities in the northern half of the Georges Bank, pending agreement on the boundary line.

Subventions on coal exports - western Canada

In February it was decided to approve the application of Canmore Mines Limited for subvention aid on coal exports to Japan for 1966-69, 1969-70, and 1970-71. The average rate of subvention was \$2.16 per short ton, and the total subvention approval for this period was \$2.2 million. This aid had been instrumental in getting a market established for Canadian coal in Japan.

Douglas Point heavy water plant - Bruce A

Atomic Energy of Canada Limited (AECL) was authorized in February to construct heavy water production facilities at Douglas Point, Ontario, in cooperation with Ontario Hydro, with the plant to have a production capacity of 800 tons per year, double that of a previous authorization.

U.S. plans for Alaska crude oil

In the United States, plans were announced in March to move Alaskan oil to U.S. markets via a trans-Alaska pipeline and by tanker down the West Coast. At the same time, plans of U.S. oil companies to test the Northwest Passage route through Arctic waters with the tanker "Manhattan" in the summer of 1969 were evidences of the interest in trying to get Alaska oil to the major markets of the Atlantic seaboard. Assessment of transportation and marketing plans thus became of paramount importance to Canada's Task Force in Northern Oil Development. Findings relative to new patterns of North American supply would assist in Canadian oil policy planning.

NEB report on NOP

In February, the National Energy Board (NEB) completed a review of the national oil policy in relation to the marketing situation. It concluded that the Canadian oil industry, and the economy in general, had benefitted over the period of eight years since the national oil policy (NOP) was implemented in 1961. However, in 1969, as in 1961, the basic problems and uncertainties confronting the industry related primarily to markets rather than to the adequacy of the resource base, or to the environments in which oil was being explored for and produced. Marketing problems had arisen because known oil resources were relatively high cost and landlocked. Preferential access to the more proximate and larger markets of the U.S. was conditioned by U.S. national and international political considerations. The immediate problem in regard to export markets in early 1969 related to the very high rate of growth in Canadian exports in the immediate past. This was causing concern

in the U.S.. Accordingly, the NEB recommended that Canadian export policy should be directed towards avoidance of situations where Canadian goals directly confronted U.S. policy objectives while seeking optimum conjunction of Canadian and U.S. objectives. At the same time, the voluntary program of restricting the domestic market west of the Ottawa Valley to Canadian crude was becoming more difficult to maintain because of the pressure of cheaper foreign imports. In view of these export and domestic developments, Canadian oil policy was undergoing a more fundamental and far-reaching re-appraisal than at any time since 1961 at a time when the U.S. was reassessing its oil import program. This was also the time when the Prudhoe Bay, Alaska, oil discovery, and the possibility of similar finds in the Canadian North and offshore, were raising the prospect of fundamental change in the pattern of North American supply.

Oil exports to the U.S.A.

Bilateral energy discussions between Canada and the U.S. in 1969 centred largely on the issue of Canada's growing oil exports to the U.S. and that country's insistence that they should not exceed the limit of 306,000 barrels a day in 1969, as agreed to in 1967, even though conditions had changed and there was increasing U.S. company demand for Canadian oil. The U.S. position was made clear in bilateral discussions in April which followed a meeting in March between the Prime Minister and the President. Later in the year, in August, in a Note to the U.S. Department of State, Canada reviewed the history of energy relations between the two countries and emphasized the Canadian view that both countries had an interest in further development of trade in oil between them and that this could strengthen the security of U.S. supplies. This view was put forward at a time when the U.S. Cabinet Task Force on Oil Import Control was reviewing factors relevant to the U.S. oil import program.

First report of Task Force on Northern Oil Development

In April, the Task Force on Northern Oil Development, which had been established in December 1968, submitted a progress report to the federal government. Based on this report, the responsible Ministers (EMR, Indian Affairs and Northern Development and Transport) made a number of recommendations, including the following:

- that steps be taken to formalize Canada's participation in the marine feasibility trials of the U.S. tanker "Manhattan";
- that the federal government cooperate with industry in research relative to northern oil and gas pipelines, including on-site tests of pipeline construction and operating procedures in permafrost areas;
- that the Task Force give consideration to other types of federal government participation that might be warranted in relation to northern pipeline and marine transport operations should it be demonstrated that it would be in the national interest to establish such transportation routes;
- that, in view of the rapidly developing events following the discovery of oil in 1968 at Prudhoe Bay, Alaska, and the generally acknowledged oil potential of northern Canada, the Canadian Government prepare to extend effective occupation of its Arctic

Islands and channels through a build-up in research and services relative to resource development, transportation and communications to not only help to accelerate northern development but also to contribute significantly to Canada's claim to Arctic sovereignty.

Offshore
negotiations

In April, a decision was taken to initiate federal-provincial discussions on offshore mineral rights as soon as possible, with emphasis initially on making the federal position clear.

Atlantic
Provinces Power
Development Act
assistance
terminated

By Cabinet Decision of May 8, coal subvention payments under the Atlantic Provinces Power Development Act (APPD Act) were to be terminated. The Act was assented to in January 1958 and since then had provided for subvention payments on the cost of Maritime coal used in power generation in the provinces of New Brunswick, Nova Scotia and Newfoundland. The other provision of the Act was terminated in December 1969. Under that provision, long term loans were made available to provincial utilities at Crown corporation rates. While the Act assisted in the development of electric utility systems in the Atlantic Provinces, it only applied to thermal power generation and was limited to provincial publicly owned utilities. In place of this assistance, support was to be provided to projects of major significance to regional power systems through programs of the Department of Regional Economic Expansion. Coal subventions paid under the APPD Act totalled \$21.8 million and loans granted totalled \$218 million (see note for November).

Coal export
subventions -
western Canada

In May, a decision was taken to increase subvention aid on coal exports to Japan in 1969-70 by the amount required to export the 58,400 tonnes left unshipped from 1968-69. The companies assisted were Coleman Collieries Limited, Kaiser Resources Limited, and Canmore Mines Limited. Subvention aid for these additional shipments was in the range of \$2.20-\$2.44 per short ton but was terminated in 1971.

Oil policy
review in
Canada

In May a study of oil policy alternatives open to the federal government was initiated in the context of possible U.S. policies. Plans were made to discuss policy alternatives with the Premier of Alberta, and with the integrated oil companies, because of the need to lower the price of oil in Ontario to reduce the pressure of foreign oil on the Ottawa Valley line. Plans were also made for discussions with the U.S. on the impact of its oil policy on Canada when U.S. long-term policy was established following the review it had underway.

Oil and Gas
Production and
Conservation Act

The Oil and Gas Production and Conservation Act was enacted by the federal government in June. It applies to oil and gas resources on all federal lands. The Act, as passed in 1969, was amended in June 1970 to give more comprehensive control, particularly with regard to safety and environmental control in offshore drilling.

Dominion Coal
Board terminated

A decision was taken in June to terminate the appointment of existing Members of the Dominion Coal Board and to appoint a new Board consisting of EMR officials. The effective date of the change in membership was July 1. The Board was subsequently disbanded in May 1970.

Uranium
export policy

On June 19, the Minister of EMR announced policy in detail with respect to future sales of uranium to other countries, further to the policy announcement of June 1965 which had provided for export sales under safeguards to ensure that uranium was used only for peaceful purposes. The new statement noted that significant changes had taken place since 1965 in the world uranium market, with a growing world requirement in relation to available supply and a demand for long-term contracts. At the same time, it was hoped that the recent signature by many countries of the Non-proliferation Treaty would curtail the spread of nuclear armaments. The June 1969 announcement specified that all contracts covering the export of uranium or thorium would be examined and approved by the appropriate federal agency before any application for an export permit was considered. This would cover all aspects and implications of a contract, such as nuclear safeguards, the relationship between contracting parties, reserves, rate of exploitation, domestic requirements, domestic processing facilities, and selling and pricing policy. Approval would not normally be given to contracts of more than 10 years' duration unless provision was made for renegotiation of price. Once an export contract was approved, export permits could be issued annually provided that the conditions of the contract had been maintained. Approval of an export contract would only be granted for the supply of uranium and thorium for peaceful purposes to customers in countries with which Canada had completed a safeguards agreement, or following the coming into effect of the Non-proliferation Treaty, with customers which had concluded the necessary safeguards agreement with the International Atomic Energy Agency.

Coal import
tariffs removed

In June, tariffs on coal imports were removed. As early as 1870, Canadian domestic coal had been protected by import duties and until the late 1960s tariffs had been maintained almost continuously. A duty drawback of 99% of the tariff had been given on coal used for manufacture of certain products, and applied to about half of all Canadian imports of coal. In accordance with a GATT agreement, coal tariffs had been scheduled to be progressively reduced, and eliminated by 1972. As a result of GATT negotiations, tariff removal was accelerated. There have been no quantitative restrictions on coal imports.

First Arctic
Islands gas
discovery

The first gas discovery in the Arctic Islands was reported in July at Drake Point on Melville Island. The well blew out of control until finally capped in September 1970. The first oil discovery on the Mackenzie Delta was made in 1970, and in the Arctic Islands in 1972.

U.S. embargo
on uranium

In August the federal government sent a note to the U.S. government urging it to remove as quickly as possible its embargo on the enrichment of foreign uranium for domestic consumption. Canada considered that the United

States prohibition of the enrichment of foreign uranium for domestic sale was a contravention of the provisions of the General Agreement on Tariffs and Trade (GATT). Since the U.S. embargo on enrichment of foreign uranium for domestic use became effective in August 1964, Canada had been denied access to over half of the free world's uranium market. In 1969 Canada's uranium industry was operating at about one-quarter of its 1959 peak production level.

**Manhattan voyage
through the
Northwest
Passage**

In August, the tanker S.S. Manhattan commenced its voyage through the Northwest Passage to determine whether Prudhoe Bay, Alaska, crude oil could be shipped by tanker via that route to the Atlantic seaboard, some 4,500 miles away. The Manhattan was accompanied by the Canadian Coast Guard Ship "John A. Macdonald", which was Canada's largest icebreaker then in service. Canada also provided information on ice conditions through airborne remote sensing equipment, and other support services. Although the 1969 voyage was completed successfully, and a further test of the economic feasibility of the route was conducted in 1970, it was decided to transport Prudhoe Bay crude oil by pipeline across Alaska to a port on the southern coast rather than to attempt to establish a commercial route through the Northwest Passage.

**Arctic sovereignty
re. voyage of
the Manhattan**

In September the federal government made plans to introduce legislation in the next session of Parliament to claim a territorial sea of 12 miles, measured from straight baselines, in the Canadian Arctic. In relation to the voyage of the S.S. Manhattan through the Canadian Arctic, this would have the effect of allowing the Canadian government to control the use of the Northwest Passage through the Arctic. Subsequently, this matter was dealt with in the Speech from the Throne and in related debate. The 1969 voyage had focused considerable attention on the Arctic sovereignty issue and in 1970 Parliament passed the Arctic Waters Pollution Prevention Act as a basis for confirming Canada's sovereignty in the North. The Act was proclaimed in August 1972.

**Nelson River
power
development**

The Manitoba government announced on September 15 that it would not proceed with the diversion of the Churchill River for hydroelectric development purposes, as called for in the February 15, 1966 Nelson River Agreement, because of the flood threat to 600 Indian families in the Southern Indian Lake area. As this change in plans would not affect the terms of payment by Manitoba for the transmission facilities to be constructed by the federal government from the Kettle Rapids power site to Winnipeg, the Manitoba decision did not impact on the 1966 Agreement.

**AECL research
facility for
Taiwan**

In October, Atomic Energy of Canada Limited (AECL) was authorized to complete the contract entered into with Taiwan on September 15 for the supply of a research facility. Approval was also given to a proposed draft agreement between the International Atomic Energy Agency and the Government of the Republic of China concerning the application of safeguards to the Taiwan research facility.

Coal subventions
for N.S. and
N.B. ended

Coal subventions under the Atlantic Provinces Power Development Act, for Nova Scotia and New Brunswick, were terminated effective November 30, 1969, based on a decision taken by the federal government in May. In lieu of continued subvention payments, it was planned to pay special adjustment assistance, in the amount of up to \$3.1 million to Nova Scotia and up to \$1.5 million to New Brunswick on or before April 1, 1970. However, New Brunswick would not be eligible to receive this payment in the event it accepted a previously authorized grant of \$4 million to assist in the construction of an interconnection facility between the Quebec and New Brunswick power systems.

Export and
domestic market
constraints on
Western Canada
crude oil
producers

Canada/U.S. oil discussions had been ongoing in 1968 and 1969, and in November following an appraisal of progress it was decided that they should continue with the Canadian side emphasizing the security of oil supplied to the U.S. from Western Canada, the possibilities for cooperation with regard to a Mackenzie Valley pipeline, the U.S. interest in its substantial investment in the Canadian oil industry, and mutual interests regarding natural gas, coal and other forms of energy. These and other initiatives were to be taken in endeavouring to reach an understanding with the U.S. regarding adequate access for Western Canadian crude oil to the U.S. market, having regard to the U.S. concern about the dependence of Eastern Canada on offshore oil supplies and the related potential threat to U.S. supply from Western Canada. At the same time, in view of restricted access to U.S. markets, oil producers in Western Canada were pressing for greater markets in Eastern Canada despite the fact that they could not compete in the market they did serve in Ontario without the protection provided in that market through the National Oil Policy.

CPA views on
gas export
restrictions

In a submission to the National Energy Board in November, 1, at the time the Board was hearing applications for gas export permits, the Canadian Petroleum Association set out views concerning gas exports that represented the general position of the oil and gas industry. The Association reiterated its position, as it had a number of times previously including in a submission to the NEB in 1965, that the industry could best compete for markets under conditions of least restraint and that contract interference can only impair the effectiveness of the market place which is the best forum for allocation of supply and demand. "If at this juncture in the history of Canada's gas industry, when gas export demand is buoyant, we choose to forego this market at the expense of over-protectionist policies, the U.S. which is now sorely in need of this energy source (gas) may be forced to seek other alternatives. We must avoid this risk". (As recorded in a note of August 1970, the NEB denied, for the first time, authorization for additional gas exports for reasons of inadequate surplus to protect future Canadian requirements).

**NACOP
established**

A National Advisory Committee on Petroleum (NACOP) was announced on December 4, 1969 by the Minister of EMR following extensive deliberations within the federal government and consultations with the Canadian Petroleum Association. Members of the Committee, appointed in January 1970, were representatives of petroleum marketing and refining, as well as of the exploration, production and transportation sectors of the petroleum industry. They were to serve in their individual capacities and not as delegates of their representative organizations or companies. The Committee was established to enable the Minister to consult in the fullest degree possible with the industry on oil and gas matters. It continued in operation until the late 1970s.

**Western Canada
coal industry
export growth**

In December, it was apparent that the previous two years had seen a remarkable turn of events in the Canadian and world coal industries. Mining companies in all coal resource countries were striving to bring in new coal mines or renovate old mines to meet the growing demand for coal by thermal electric and iron and steel industries. Based on contracts with the Japanese steel industry, exports to Japan from Canada were scheduled to be about 5 million long tons in 1970, 11 million tons in 1972 and at least 14 million tons in 1975. At the same time, there was concern about the continuity of coal supply to Ontario from the U.S., and Ontario coke producers were beginning to examine the possibility of using coking coal from Western Canada, with a test shipment of 200,000 tons being planned for 1970.

**Uranium market
resistance**

Following the optimism in 1968 regarding the future of the Canadian uranium industry, an assessment made in December of developments in 1969 showed that there had been only limited success in negotiating additional contracts. Delays in nuclear plant construction were being experienced in several countries. These delays, and escalations in capital costs for nuclear plants, had forced some utilities to switch to conventional thermal plants, based on coal.

**Upper Churchill
power
development and
65-year contract
with Hydro-
Québec**

By December, a contract had been completed between Churchill Falls (Labrador) Corporation and Hydro-Quebec providing for sales of hydroelectric power, valued at about \$5 billion, to the Quebec utility over a period of 65 years (a 40-year contract with a 25-year renewable option). There was no provision for escalation in operating and maintenance costs, the contract specifying 2.6-3.6 mills/kWh, dropping to 2.0 mills in the year 2016. Construction of the Upper Churchill Falls power project had been initiated in July 1967 on the basis of a letter of intent signed in 1966. British Newfoundland Corporation Limited (Brimco) had initially received exclusive power rights on all undeveloped rivers in Newfoundland and Labrador and in 1958 established Churchill Falls (Labrador) Corp. to develop the Upper Churchill Falls power site. The 65-year contract remained controversial into the 1980s.

THE YEAR 1970**Ban on West Coast
oil exploration**

On January 12, the Minister of EMR announced that no further exploration for oil or natural gas would be undertaken in the Strait of Georgia on the West Coast. All Canada Oil and Gas Permits in the Strait were relinquished, covering 675,000 acres; they had been issued 6 years previously to Gulf Oil, which subsequently had formed a partnership with Canadian Pacific Oil and Gas to explore the area. The decision was taken by the federal government in the context of environmental concerns about possible pollution in an important fishing and recreational area.

**Task Force on
Northern Oil
Development
report**

On January 26, the Task Force on Northern Oil Development, which had been established in December 1968, submitted to Ministers a second progress report. Recommendations, approved by Ministers, called for departments and agencies concerned with northern resource development and the marketing of oil to prepare schedules of increased activities that would be pursued in the event that commercial decisions regarding northern transportation were indicated. This would enable the government to move ahead more quickly, when commercial decisions were made, with the programs that would be required to strengthen and maintain Canada's position of sovereignty and control in the North and to ensure the optimum development of its northern oil and gas resources. In its progress report, the Task Force on Northern Oil Development reported on marine feasibility of the Northwest Passage as an oil transportation route, with particular reference to the Manhattan tanker trials; pipeline feasibility, with particular reference to pipelines from Prudhoe Bay across Canada to U.S. markets; research programs to support marine and land exploration, production and transportation; and on the market outlook in the context of North America oil and gas supply and demand trends.

**Canada-U.S. oil
relations**

In January, the federal government was taking the position in Canada-U.S. oil relations that it would refrain from presenting specific proposals with regard to acceptable levels of Canadian oil exports. This was a time of concern in the U.S. about increasing Canadian oil imports and of bilateral discussions as to the effectiveness of Canada's voluntary system of oil export controls.

**Canada-U.S.
energy relations**

Following Canada-U.S. oil discussions in February, the federal government decided that it would be prepared to ensure that oil exports did not exceed the average rate of 440,000 barrels a day for the period March 1 - December 31, 1970 for Districts I-IV, provided that the U.S. would undertake to negotiate during that period a substantial increase in the rate of delivery for the following calendar year. At the same time, Canada would be prepared to discuss possible arrangements for freer trade in natural gas, uranium, coal and electricity. Later in

the month, when it became evident that the U.S. had decided to impose quotas on the imports of Canadian oil for the remainder of 1970 and to impose mandatory controls at a level much below that proposed by Canada, the Canadian government decided to express strong regret to the U.S. government, and publicly, concerning the U.S. decision.

Canada-U.S.
oil relations
- U.S.
Presidential
Proclamation

On March 10, a U.S. Presidential Proclamation was issued to restrict the flow of Canadian oil into U.S. markets. The 1967 arrangement between the U.S. and Canadian governments had stipulated a Canadian oil import level of 330,000 barrels a day for 1970. As a result of strong U.S. market demand for oil in Districts I to IV, the actual level of imports into those Districts, all areas east of the Rockies, averaged about 560,000 bld in the first quarter of 1970. This was 230,000 bbls above the limit the Canadian government, in 1967, had agreed to ensure, short of imposing formal export controls. Nearly 90,000 b/d of the increase went to the Chicago market which had just become accessible as a result of completion of the 'Chicago Loop' of the Interprovincial-Lakehead Pipeline.

NOP problems

At the same time in March as Canada was facing restrictions in the U.S. oil market, there were increasing pressures on the National Oil Policy Ottawa Valley line, as established in 1961. This was due to an increasing in-flow of petroleum products into Ontario from Quebec and the Atlantic Provinces where refinery expansion had been encouraged by provincial and federal incentive programs while there had been a fall-off in Ontario refinery expansion because of the relatively high cost of western Canada crude in that province. These Canada-U.S. and domestic trends had increasingly involved the federal government in oil market allocation and negotiation in pursuing the objectives of the NOP.

Loans for
CANDU sales

In March the government decided to authorize the Export Development Corporation to make a loan of up to \$110 million to any one of the governments of Roumania, Mexico, Brazil or Australia to finance the sale of a 600 MWe CANDU reactor system, including heavy water and initial fuel, with terms to provide for repayment of the loan in 25 years and interest at 6%.

Foreign ownership
restrictions for
uranium

In March 1970, the government decided that certain criteria would apply with respect to foreign ownership in the Canadian uranium industry including, in the case of individual foreign ownership, a maximum holding of 10% of the outstanding shares of any existing uranium company; and, in the case of aggregate foreign ownership, a maximum holding of 33% of the outstanding shares of any existing company. The Prime Minister announced the new ownership provisions in the House of Commons on March 2 and stated that, if necessary, legislation would be introduced to stop the sale of the control block in Denison Mines Limited by resident Canadian owners to a foreign buyer.

**Implementation of
ownership
restrictions in
the uranium
industry**

On March 19, the Minister of EMR informed the House of Commons, pursuant to the Prime Minister's statement of March 2 on new uranium ownership provisions, that limitation of the extent of uranium producing enterprises in Canada by non-residents was being implemented because of the special importance of the industry in relation to the national interest, as reflected in the Atomic Energy Control Act and a number of statements of general policy, the most recent of which was made on June 19, 1969. In commenting on the ownership limitations, referred to above, he noted that there would be no limit to ownership of enterprises engaged in exploration, but when exploration led to the discovery of a commercially exploitable uranium ore body, the foreign ownership of the company bringing it into production would be limited to 33 %. The new regulations were effective March 2, 1970, the date of the Prime Minister's announcement, but they were not to be retroactive in relation to mines existing on that date. As clarified in May, companies were to have six years - until March 2, 1976 - to establish to the satisfaction of the AECB that they had a commercially viable deposit on the mineral rights under exploration on March 2, 1970. Among other stipulations: where foreign holdings amounted to 50% or more, such holdings could be retained but any transfer of them would have to be to Canadians only, down to a 33% aggregate foreign ownership limit. Where existing foreign holdings were below 50%, their transfer to other foreign investors was to be permitted.

**Non-Proliferation
Treaty**

On March 5, the Treaty on the Non-Proliferation of Nuclear Weapons came into force. This international Treaty had been signed by Canada on July 23, 1968 and ratified on January 8, 1969. The initial signing of the Treaty had taken place in London, Washington and Moscow on July 1, 1968. By 1970, 40 countries had ratified it. With the coming into force of the NPT, the work begun by the U.N. Atomic Energy Commission in January 1946 was partially completed. The twin concepts of increasing the use of nuclear energy for peaceful purposes while also preventing the proliferation of nuclear weapons to other countries were now accompanied by a treaty but any nation could withdraw from the NPT on the three months notice. The only enforcement power against a violation of the NPT would be the uncertain authority of public opinion supported by the equally uncertain imposition of sanctions. The explosion of a nuclear device by India in May 1974 following India's commitment to IAEA in 1971, and many commitments to Canada, illustrated the vulnerability of international control.

**Fundy tidal
report**

In March, a Federal-Provincial Board submitted to the Nova Scotia, New Brunswick and federal governments the report resulting from a three-year, \$2.5 million study of the possibilities of developing power from the tides of the Bay of Fundy. The report concluded that the economic development of tidal power was "not feasible under prevailing circumstances". However, the study board recommended additional studies where there were significant changes in such important factors as interest rates, construction and generation technology, and the pollution problems and cost of conventional sources of generation. The Board's report was tabled in the House of Commons on March 20, 1970.

Support of
Hydro Quebec
Research
Institute

In March the federal government decided to support the Hydro Quebec Research Institute by a loan of \$17.5 million and to make annual grants of \$325,000 to the Quebec Hydro Electric Commission for a period of 10 years, commencing in 1971-72 (see July note).

Coal Subvention
Program and
related support
programs
terminated

The Coal Subvention Program was terminated on March 31, except for a special one-year extension for two Alberta mines allowing them time to complete mine and market development plans to achieve economic independence. The program had been initiated in 1928 and during the 42 years of its life, approximately \$327 million of federal subvention aid had been issued, 70% of this aid going to Cape Breton mines. The annual payments had increased considerably in the 1960s, and 63% of the total 42-year aid was paid out in that decade. The program was discontinued because the coal industry of western Canada had become viable through various federal initiatives in response to marketing opportunities in Japan and, for the Maritime provinces coal industry, alternative arrangements had been made for coal industry rationalization and assistance with the related social problem. The Canadian Coal Equality Act of 1930, the Maritime Coal Production Assistance Act of 1949 as amended to the Coal Production Assistance Act of 1959, and the Dominion Coal Board Act of 1947 were all revoked in 1970 along with the termination of the Coal Subvention Program. This marked the commencement of a new era of coal policy determination in Canada with emphasis on the optimum use of coal resources in conjunction with other energy sources and with emphasis on the most effective contribution of each to the economy.

Dominion Coal
Board Act,
Canadian Coal
Equality Act,
Coal Production
Assistance Act
revoked

With the termination of the Coal Subvention Program in March, two other major support programs were also terminated. The Canadian Coal Equality Act had been enacted in 1930 to provide assistance for bituminous coal mined in Canada and converted into coke for the manufacture of iron and steel in Canada. Although the Act was not revoked until 1970, payments had been discontinued by Cabinet decision in 1968. A total of \$10 million was paid under this legislation, the main beneficiary being the steel plant and coal industry at Sydney, N.S. The Act had very little potential for benefitting western Canada coal as freight rates were too high to allow western coal to be used in Ontario steel plants. The Maritime Coal Production Act of 1949 was amended in 1959 to the Coal Production Assistance Act, the basic objective of this legislation being to promote the modernization of the coal industry, improve productivity and lower costs. The total amount authorized, for loans, was \$20 million as a non-revolving fund. A total of 31 loans were made involving a loan amount of \$16.5 million, two thirds to Maritime companies and one third to western Canada companies. The Dominion Coal Board administered these and other coal support programs including the coal subvention program. The Dominion Coal Board Act, and the functions of the Dominion Coal Board, ended with the proclamation on May 1, 1970 of the Dominion Coal Board Dissolution Act. Assistance under the Atlantic Provinces Power Development Act was terminated in May 1969.

Canadian
criticism of
U.S. oil import
policy

In an address to a U.S. audience in April, the Minister of EMR expressed a commonly held Canadian view that the unilateral decision on the part of the U.S. to cut back imports of Canadian oil was a mistake, and of harm to both countries. He took the position at that time that

Canada had existing and potential oil resources well beyond the need of Canadians in the present or foreseeable future. The U.S. unilateral cutback was not conducive to achievement of trading arrangements which would be good for both countries. (Three years later, the U.S. removed its oil import restrictions and Canada implemented oil export controls).

**The Sovereignty
issue in Arctic
waters**

In April, the Arctic Waters Pollution Prevention Bill was introduced in Parliament. With the increasing activity in Arctic waters, the federal government had become concerned about the threat of oil pollution, a concern that had been heightened with the 1969 and 1970 test voyages through the Northwest Passage of the American tanker, Manhattan. In a public address on April 15, the Prime Minister stressed the importance of this anti-pollution legislation and strongly defended the Canadian position that the Northwest Passage was not an "international strait", but an extension of the Canadian mainland. There was no similarity between the area comprising the Canadian Arctic archipelago, frozen much of the year, and the water and island areas in tropical archipelagos. The Beaufort Sea was not a "high sea". Canadian sovereignty extended over the entire area and, therefore, Canada had the responsibility of providing legislative preventive measures for control of pollution. The U.S. had taken the position during the 1969 and 1970 test trials of the Manhattan that the tanker was moving through international waters. The Arctic Waters Pollution Prevention Act was approved by Parliament in 1970 but not proclaimed until August 1972.

**Oil and Gas
Land Order
No 1-1961
withdrawn**

In April, Land Order 1-1961 was withdrawn. As a consequence, the modified checkerboard system established by the Canada Oil and Gas Land Regulations of 1961 was returned. The Land Order, in effect from 1961 to 1970, enabled the permittee, upon conversion from permit to lease, to regain the corridor acreage from the Crown and thereby avoid disposition of the surrendered sections to third parties. Under this system, known as the "unitary development concept", the permittee could acquire the whole of the production area, and any reserves discovered could be developed as a unit under a single operator (see June note).

**AEC Regulations
on foreign
participation
in uranium
development**

In May a decision was taken to develop Regulations under the Atomic Energy Control Act, in order to implement the policy announced in March with regard to non-resident ownership in the Canadian uranium industry and to provide for such other circumstances as undivided interests and participation by foreign governments and also circumstances in which companies had undertaken commitments with regard to foreign participation prior to March 2.

**NEB Act
export-import
licensing
provision
proclaimed**

In May the licensing provision of Part VI of the Natural Energy Board Act was proclaimed. The power to control exports and imports of oil was embodied in Part VI of the NEB Act which came into effect in 1959, subject to later proclamation. Although proclamation was made in May 1970, the attendant regulations excluded oil other than imported gasoline. It was not until March 1, 1973 that

amendments to regulations under Part VI were approved, which brought into full effect the licensing of export of crude oil and equivalent hydrocarbons, with export control of products being made effective in June of that year.

Administration
of foreign
ownership
producers of
uranium

On May 5, the Minister of EMR issued a statement further clarifying the matter of foreign ownership in the Canadian uranium industry, pending the establishment of Regulations under the Atomic Energy Control Act. Companies that were certified by the Atomic Energy Control Board as being actively engaged in uranium exploration on or before March 2, 1970 were given 6 years until March 2, 1976, to demonstrate that they had a commercially viable deposit of uranium ore, but did not have to be in production by that date. Such companies would be treated in the same manner as that applicable to companies in production and would be able to retain holdings existing on March 2. However, any sale of such holdings would have to be to Canadian residents until the 33% foreign ownership level was reached.

Tension in
Canada-U.S.
energy relations

An address by the Minister of EMR on May 12, to a meeting of U.S. government and oil industry officials in Denver, Colorado, directed attention to U.S. restrictions on Canadian oil exports. It also had reference to the issue of foreign ownership and control in the oil industry in Canada and to a new Canadian nationalism and sense of identity. The strong criticism the speech drew in the United States was symptomatic of the difficult energy relations between the two countries in the early 1970's because of the rapidly changing oil supply and pricing conditions of that period. What Canada was seeking in relation to the U.S. oil market was a realistic trading arrangement which would ensure access on a normal commercial basis vis-à-vis U.S. oil. In that context, the Canadian government deeply regretted the imposition by the U.S. of quantitative restrictions. There was some indication that the U.S. government would continue to restrict Canadian oil imports until Canada ceased its reliance in Quebec and the Maritimes on "insecure" sources of offshore supply. However, 70% of that supply came from Venezuela which the U.S. Administration, for its own supply, classified as a secure source. In addition to the uncertainty about the U.S. market, Canada's other major uncertainty related to the timing of frontier development. These two factors gave rise to the major difficulties involved in reaching conclusions regarding any changes in the country's oil policy in the early 1970s.

Federal-Provincial
Nelson River
Review Committee-
first Annual
Report

On June 15, the Federal-Provincial Nelson River Review Committee submitted its first Annual Report, dated March 31, 1970, to the federal and Manitoba governments, in accordance with the Provision of Paragraph 26 of the February 15, 1966 Agreement between Canada and Manitoba pertaining to the development of hydroelectric power on the Nelson River and transmission of that power to southern Manitoba. The report describes events that led to the Agreement, the nature of the undertakings by Canada and Manitoba, and construction to March 31, 1970. These Annual Reports provide a full record of the implementation of the Agreement and of the progress made each year.

Oil and Gas
Land Order
No. 1-1961
Ministers'
statement

On June 4, the Minister of EMR and the Minister of Indian Affairs and Northern Development made a public statement regarding the withdrawal in April 1970 of Oil and Gas Land Order No. 1-1961 to confirm that there was no intention of eliminating the important concept of unitary development of oil and gas discoveries that formed the basis of the withdrawn Land Order. The Land Order was withdrawn during the course of a review of the Canada Oil and Gas Land Regulations so that terms and conditions of leases issued under the Land Order could be reviewed and modified in the light of the new oil and gas activities in the North and in the offshore. This drew a strong reaction from the oil industry. Industry was assured that changes in the Canada Oil and Gas Land Regulations would not retroactively deprive permittees of rights vested under existing permits. However, it was probable that operational requirements and administrative procedures would be altered. Under Land Order No. 1, companies could acquire 50% of a permit area, on a checker-board basis, and convert it to lease. They could also select, from the corridor acreage by paying a basic royalty of 10% and an additional royalty as low as 5% in the Arctic Islands and somewhat higher rates further south. It was essentially the corridor acreage provision that was rescinded on the basis that it was too much of a giveaway.

Manhattan
tanker trials

In June the second voyage of the U.S. tanker Manhattan was completed through the Northwest Passage to continue the work commenced in 1969 of testing the feasibility of transporting crude oil from Prudhoe Bay, Alaska, to the Atlantic. A ship of 300,000 tons dead weight capacity was considered to be technically feasible but the economics were never satisfactorily demonstrated and eventually a trans-Alaska oil pipeline was built instead of trying to use the marine route. The Manhattan trials raised sovereignty and environmental concerns in Canada.

Roberts Bank
coal terminal

The Roberts Bank port was officially opened on June 15. A report had been submitted to the B.C. government in September 1966 recommending a port development at Roberts Bank, primarily for the trans-shipment of coal. A survey made in 1966 had indicated possible increases in B.C. coal sales contracts with Japanese buyers of from less than one million tons annually at that time to 8 million tons by 1970. In October 1967, the federal government took over that portion of the port beyond the low water mark, proceeded to dredge berthing space for ships drawing over 60 feet of water, and to construct a quay and coal assembly area. The port involves unit train operation in which trains over a mile long are emptied without the need for uncoupling cars.

Offshore
negotiations -
resource
administration
lines

In July, it was decided that EMR should continue to explore with provincial governments the feasibility of federal-provincial cooperative administrative arrangements concerning both the offshore areas landward of resource administration lines and seaward of the lines, provided that for areas seaward of the lines, the right of the federal government to make final decisions on policy and administration would be made clear. Studies were to be commenced on various alternatives for revenue sharing with and between provinces.

Canada-U.S.
oil relations

In July the government decided to pursue vigorous efforts to attain improved access to U.S. markets for oil but would not enter into arrangements with the U.S. involving a degree of continental integration which could impair Canadian control over the exploration, development and use for maximum Canadian advantage of the country's energy resources. In addition, Canada would withhold its consent to the export of such quantities of natural gas as would diminish its bargaining power represented by the U.S. need for Canadian gas. These positions were to be maintained pending completion of a comprehensive review of the National Oil Policy, including a detailed evaluation of Canadian options such as serving eastern Canada and possibly European markets by the extension of pipeline systems or the construction of a new pipeline system. At this time, there was increasing pressure to open up the Montreal market to western Canada crude oil as a result of the U.S. Presidential Task Force on Oil Import Control recommendation calling for curtailment of foreign oil imports, including those from Canada. The Task Force had reported to the President in February 1970.

Hydro-Quebec
Institute of
Research -
federal support

On July 6, the federal and Quebec governments and the Quebec Hydro Electric Commission announced the signing of an agreement whereby the federal government undertook to give financial support to the new \$35 million Hydro-Quebec Institute of Research (IREQ). The federal contribution took the form of a \$17.5 million loan, and annual grants of \$325,000 over ten years. The Institute, situated at Boucherville, Quebec, consists of three components: a General Research Laboratory, a High Voltage Laboratory, and a High Power Laboratory. The Institute was designed particularly for the testing of equipment at the higher transmission voltages and power levels needed for the future expansion of Canadian electrical utility systems. It provided testing capability not previously available in North America. In order to ensure that the Institute would make maximum contribution to the research problems and testing requirements of the Canadian electrical utilities and the Canadian electrical manufacturing industry, the agreement provided for a federal-provincial review board as well as an advisory technical committee, representing the federal government, the electrical utilities and the electrical manufacturers. While significant pioneering work had been done in Canada in the development of extra-voltage facilities as an essential part of major power developments - Peace River in B.C., Nelson River in Manitoba, Manicouagan in Quebec, and Churchill Falls in Labrador - further research was needed to keep Canada in the forefront of this highly technical industry. Prior to entering into the agreement with Quebec, the federal government had received assurances from the other provinces that there would be need for Canadian facilities of the type proposed by Hydro-Quebec and that they would be prepared to use the research facilities proposed for the Institute. The federal loan and annual grants have been administered by EMR. Loan advances were made over a period of five years, 1970 to 1974, while the loan is being repayed over 25 years, commencing in the mid-1970s.

Northern Oil and Gas Pipeline Guidelines

On August 13, the Minister of EMR and the Minister of Indian Affairs and Northern Development announced Canadian government guidelines for construction and operation of northern oil and gas pipelines. The guidelines, prepared by the Task Force on Northern Oil Development, established six basic principles which have been widely recognized and accepted. The principles relate to a "corridor" within which pipelines are to be located; common carrier or contract carrier service; the jurisdiction of the Parliament of Canada, with regulation in accordance with the National Energy Board Act; means by which Canadians will have substantial opportunities for participating in the financing, engineering, construction, ownership and management of northern pipelines; preservation of the ecology and environment, and the protection of the rights of northern residents; and the training and employment of residents of the north, both during the construction phase and for the operation of the pipeline. In order that the federal government and industry would be fully aware of the geotechnical and environmental impact of oil and gas pipeline construction and operation on the North, various government agencies had commenced relevant scientific and technical studies and tests on a priority basis. Particular attention was directed towards terrain conditions along probable routes for the pipeline corridor in view of the presence of permafrost and muskeg. Interest in northern oil increased considerably in 1970 with the first oil discovery in the Mackenzie Delta region.

Gas export application denied by NEB

In August the National Energy Board, after holding hearings on several gas export applications, denied for the first time full authorization for additional exports for reasons of inadequate surplus. It had found that the gas surplus available for export, after taking account of future Canadian needs and existing export permits, was 6.4 trillion cubic feet whereas the applicants had requested export permits covering 8.9 tcf. The application of Consolidated National Gas Limited was denied and the licence terms of three other applicants were shortened. In examining the justness and reasonableness of the export prices, the NEB continued to apply the three tests, first used in its 1967 decision: cost recovery; the export price not to be lower than comparable Canadian prices; and the export price in the U.S. market area not to be materially less than the cost of indigenous energy. Regulations amended in 1970 under Part VI of the NEB Act made it a condition of each gas export licence that the price be subject to NEB review.

Control of foreign ownership of uranium properties

On September 1, the Minister of EMR announced that, while the government had proposed to bring in to force regulations under the Atomic Energy Control Act with respect to the control of foreign ownership of Canadian uranium properties and facilities, as announced in March, it was now concluded that legislation rather than regulations would be required. Accordingly, legislation was under preparation. Because of this delay, the government decided to deal immediately with a case involving an obligation under a binding legal agreement that was in force prior to

March 2, 1970 relative to the transfer of a beneficial interest in a uranium property and also with a case concerning a transfer from a foreign owner of an interest in uranium properties that was in process on March 2.

Canada-U.S.
oil relations

In September, following another in a series of Canada-U.S. oil discussions, the federal government decided that, in preparation for the November 23 Joint Canada-U.S. Ministerial Committee on Trade and Economic Affairs, three possible courses of action should be explored: unrestricted access for Canadian oil in U.S. markets, after a phasing-in period; an agreed arrangement for progressively increasing, but limited, access for Canadian oil for a period of possibly 3 to 5 years; or continuation of the existing system of unilateral decisions by the U.S. on a year-to-year quota basis.

Proposal for an
energy policy
study

In October, the Department of Energy, Mines and Resources completed an energy policy study proposal, subsequently approved by Ministers, for a report to be prepared on "An Energy Policy for Canada". This led to a two-volume report under that title which was published in mid-1973. In the context of 1970 energy developments, the purpose of the study was seen as the need: to analyze the energy industries in Canada in terms of supply and demand concepts and the related technological, economic, and environmental factors; to assess pertinent federal and provincial government policies; to identify problems; and to make planning and programming proposals that would lead to the coordinated development of a national energy policy designed to meet the nation's future energy needs as effectively as possible. The objectives of energy policy, as defined in 1970, related to the achievement of optimum energy use; national security; resource adequacy; quality of the environment; reconciliation of federal-provincial conflicts; the equitable sharing of revenue benefits; and social considerations concerned with regional development, and with the development of management, financial and technical skills in the energy industries and in the industries involved in forward and backward linkages.

Quebec - N.B.
HVDC electrical
intertie

In October, the cornerstone for the world's largest direct current converter station was laid at Eel River in northern New Brunswick on the Quebec border. The converter was designed to allow the Hydro-Quebec Power Commission and the New Brunswick Power Commission to exchange large amounts of power. The new terminal was to be used in particular to transfer some 320,000 kilowatts of power from the Churchill Falls generating station in Labrador through the Hydro-Quebec power system into the New Brunswick power system. The interconnection was constructed of Canadian manufactured HVDC Thyristor equipment.

Canada-U.S.
Ministerial
Committee
on Trade -
oil relations

In a November 23 meeting of the Joint Canada-U.S. Ministerial Committee on Trade and Economic Affairs, Canada maintained that its role in ensuring North American security of oil supply could best be performed through greater development of its production potential rather than through a formula setting export levels in terms of spare capacity

in oilfields and pipelines. It also indicated a readiness to consider pipeline applications from corporations for the transportation of oil and natural gas from Alaska over Canadian territory to continental U.S. markets.

**EMR's policy
coordination
role**

In November the Prime Minister re-affirmed the energy policy coordination role of the Department of Energy, Mines and Resources, noting that the need to develop a coordinated approach to energy policy was one of the major factors behind the decision to establish the Department in 1966. He welcomed the Minister's initiative in getting a major review of energy policy under way.

**Joint venture
uranium stock-
pile**

On December 23 the Minister of EMR and Denison Mines Limited announced agreement in principle of a joint venture uranium stockpile program, designed to ensure the basic economic security of the Elliot Lake community in which Denison was a major employer. The Government of Canada had supported the mining industry in Elliot Lake since 1963 with stockpile programs in which the Government had been the outright purchaser of \$100 million of uranium concentrates. The first uranium stockpile was operative from July 1, 1963 to June 30, 1964, and the second from July 1, 1965 to June 30, 1970. The uranium was stored with Eldorado Nuclear Limited at Port Hope. On July 24, 1970 the Government announced that at the end of 1970 it would cease stockpiling for its own account but would offer financial assistance to uranium producers which would keep government assistance at the minimum required for the continuation of mining programs. Denison had sales agreements for normal operations from 1975 to 1984 but its contracts for 1971-1974 were insufficient to keep it in operation and, in the absence of markets for some 6.5 million pounds of U_3O_8 of new production, it would have had to close down. The joint venture stockpile agreement announced in December 1970 represented a 75-25 federal-Denison commitment to purchase 6.5 million pounds of uranium concentrates at \$6.00 per pound to thereby carry the Elliot Lake community and Denison through the critical 1971 to 1974 years (see June 1971 note re authorization of the agreement).

**Coal subvention
aid to end -
Western Canada**

In December the federal government decided to refuse the request of Coleman Collieries Limited for subvention aid on coal for export beyond the limit set in a Cabinet Decision of May 11, 1967, as amended in November 1969. The limit of subvention aid was to be reached when total shipments from the East Kootenay area totalled 2 million tons, a level that was reached in mid-November 1970.

**Land Order
No.1 to be
replaced**

In December, the federal government decided to issue a new Oil and Gas Land Order pursuant to the Canada Oil and Gas Land Regulations, retaining the unitary-development policy underlying revoked Oil and Gas Land Order No.1-1961. The rate of additional royalty on the lease acreage involved, the reversionary acreage, was to be standardized on a sliding scale based upon volume of production, with an annual rental of \$2.00 per acre.

Canada Oil and
Gas Regulations
amendments

In December, the proposed amendments to the Canada Oil and Gas Regulations reached a stage at which they were to be made available to the Canadian Petroleum Association and the Independent Petroleum Association of Canada for discussion with officials of EMR and Indian Affairs and Northern Development. The Associations were advised at that time that, as a matter of policy, the proposed amendments re. royalty, fees, deposits and term would not apply to existing permits or leases, but that consideration might in the future be given to ways of increasing Canadian participation in those resources.

Oil supply
in balance
with demand

Records available in December showed that liquid hydrocarbon production in Canada equalled domestic demand in 1970, for the first time in the history of the industry. Domestic demand for oil averaged 1.47 million barrels a day; production of crude oil and equivalent averaged 1.48 million b/d.

Energy price
trends, 1961-
1970

A review of energy price levels in December in relation to price trends since 1961 showed that No.2 furnace oil in Toronto only increased by 15.4% over the period 1961-1970, from 18.1¢ to 20.9¢ per gallon. Natural gas delivered to Toronto actually declined in price by 9.4%, from \$1.28 per mcf to \$1.16. The price of coal, as delivered to Ontario Hydro, increased by 28.2%, from \$8.30 per ton to \$10.6.

Problems for
energy policy
consideration

A review in December, as energy policy work proceeded, indicated a number of problems and energy policy needs in the energy economy relative to each of the principal energy commodities. For coal, there was a need for an export policy relative to Western Canada coal exports and an import policy relative to Ontario's dependence on coal imports. There was also a need for continuing scrutiny of the phasing-out operations of Nova Scotia and New Brunswick coal fields to ensure that the cost to the economy of those operations was minimized. Oil problems related to eastern Canada and U.S. markets and to bilateral oil relations; the required taxation and other incentives for continuing resource development, particularly in the north; offshore jurisdictional questions; and the issue of foreign ownership and control. Natural gas problems included the question of how a northern gas pipeline should be financed, and also the supply and pricing questions for domestic and export markets. Uranium problems related to foreign ownership, the future of Eldorado Nuclear Ltd., the uranium stockpile issue, declining world markets, and the fate of the Elliot Lake mining community. Financial, technological and environmental restrictions were putting constraints on growth and expansion of the electric power industry, while in some parts of Canada the industry continued to be dependent on imported fuel.

THE YEAR 1971**Energy policy
pilot study**

A pilot study, completed in January, for a report on an Energy Policy for Canada preparatory to production of that report (see June item), identified a number of matters common to all energy sources requiring attention in energy policy formulation, as perceived at the start of the 1970s:

- the need to respond to the fast-growing demand for energy while, at the same time, protecting the environment;
- the question of how much oil and gas could be spared for the insatiable U.S. market, and the concern about the related impact of rapidly rising export demand on the price structure and on the supply and price of energy in the domestic market;
- the group of concerns as to the appropriate role of government in relation to the energy industries in matters of jurisdiction and federal-provincial relations, state participation in various phases of energy production and use, and the role of the state in assuring security of supply;
- broad policies establishing the climate for industrial enterprise, and including policies as to foreign ownership, monetary and exchange policy and its effect upon the availability of investment capital, taxation policy, and policies affecting prices and incomes.

In proceeding with the energy report there was a recognition of the fact that any development of energy policy must be supported not only on economic grounds but on the even less measurable grounds of nationalism and public perception.

**Panarctic
capitalization**

In January, a decision was taken to commit the government to the purchase of 2.6 million preferred shares of Panarctic Oils Ltd., representing an increase in the authorized capital of the company, at a cost not to exceed \$11.7 million. This signified a continuation of the government's commitment to Arctic Islands exploration.

**Canada/USSR
Exchange
Agreement**

In accordance with the Canada-USSR Exchange Agreement in Science and Technology, signed in January, Canada and the Soviet Union embarked on a technical exchange arrangement relative to oil and gas, and electrical energy. This led to exchange visits of experts concerned with technological development and the possibility of commercial transactions involving the sale of machinery and equipment. The two countries continued to participate in this exchange until the late 1970s when East-West relations cooled as a result of the Afghanistan invasion.

Coal subventions
payments ended

In March, federal subvention aid to the coal industry for the marketing of coal was terminated. Except for two Alberta coal companies which had a special one-year extension, the subvention program had been terminated in March 1970. Initiated in 1928, total payments over the intervening period amounted to \$327.4 million, of which \$274.5 was paid with respect to Nova Scotia coal production. The subventions over the years had remained relatively low until the 1960s when a sharp escalation occurred because of the competition facing coal in eastern Canada from imported oil at low prices. In western Canada, the subventions were also ended because of the market that had been developed for metallurgical coal in Japan, and the rising demand of electric utility plants in the Prairie provinces for sub-bituminous and lignite coals. Payments made following this date were prior commitments which were met as the program was phased out.

Northern pipeline
debates in
House of
Commons

Following the announcement on August 13, 1970 of Northern Oil and Gas Pipeline Guidelines, there were many references in the House of Commons to northern pipeline proposals, and to the terms and conditions under which a pipeline project, particularly one transporting Alaskan oil or gas across Canada, could proceed. Included in the House of Commons debates was an Opposition Day debate of March 12, 1971 in which the Ministers of Energy, Mines and Resources, and Indian and Northern Development, reviewed the work that was being done in preparation for a pipeline application and set out the environmental, native rights, Canadian ownership and other requirements that would have to be met as a prerequisite to pipeline approval.

Canadian Govt.
- Prudhoe Bay
oil company
pipeline
discussion

A meeting was held on March 24 between federal government representatives -- the Minister of EMR and the Minister of Indian Affairs and Northern Development -- and officials of oil companies engaged in Prudhoe Bay, Alaska, oil development, to discuss possible interest in constructing a pipeline across northern Canada to take delivery of Prudhoe Bay oil as well as oil from northern Canada. The proposed trans-Alaska oil pipeline had received setbacks in obtaining authorization from U.S. authorities while the Canadian government had been interested for several years in the possibilities of pipeline transportation for oil and gas from the Canadian Arctic. While no decisions were taken at the meeting, the discussion revealed a strong preference on the part of the U.S. oil companies to proceed via the trans-Alaska route if they could get the necessary authorizations. In any event, the companies had planned to proceed on a joint venture basis whereas a route across Canada would involve a commitment to the common carrier concept. The U.S. companies had not seen a way to reconcile such a Canadian requirement with the financial and ownership structure, through a joint venture, which they felt necessary to meet their own tax and operational requirements. Eventually, the U.S. oil companies obtained U.S. government approval, but even after this meeting there was very little further U.S. consideration of a Canadian route for an oil pipeline from Alaska although the Canadian government continued to indicate an interest and to invite applications (see November item).

Foreign ownership
legislation for
the uranium
industry

In April, a decision was taken to prepare legislation governing foreign ownership in the Canadian uranium industry which would set out the principal control measures and provide for regulations for the detailed application of the measures. Recognition would be given to formal commitments between foreign governments or their agents and Canadian uranium enterprises that had been in force prior to March 2, 1970 but in all other cases foreign governments would not be permitted a direct interest in Canadian uranium producing operations. A foreign government would be permitted to have a financial or other interest in a corporation that owned not more than 10 percent of the issued and outstanding voting shares of a Canadian uranium company, provided the corporation in which the foreign government had an interest was listed on a Canadian stock exchange. There would be a 10 percent limit on individual non-resident ownership.

Northern pipeline
studies

In May a decision was taken to accelerate Northern Pipeline environmental, scientific and technical investigations, and funds of up to \$3.1 million were allocated for this work. If the work proceeded satisfactorily, the program was to continue for three additional years at a level not exceeding \$5 million per year.

Standing
Committee study
of petroleum

In May, the Standing Committee on Natural Resources and Public Works was authorized to undertake a study of the oil and gas industry in Canada, with particular reference to the ecological implications of various modes of transporting oil and gas.

Continental energy
policy

In an address given on May 19, the Minister of Energy, Mines and Resources stated: "I believe that there is no place in Canadian-U.S. energy relations for trading arrangements amounting to long-term commitments, too far in advance of our ability to predict their consequences to the Canadian economy and, therefore, to continental relations. Who could have predicted the events which have occurred in the last two or three years? Almost none of the prophets were right in their forecast as to oil prices, security questions, or rates of resource development. We are not against the export of these resources when they are clearly in excess of our own requirements -- particularly where the export today can benefit the Canadians of today -- and, at the same time, help generate the discovery of more resources for the Canadians of tomorrow."

Uranium
stockpiling
- UCAN

In June, the Minister of Energy, Mines and Resources was authorized to enter into a joint uranium stockpiling agreement with Denison Mines Ltd. Authority was given to proceed with preparations for the incorporation of Uranium Canada Limited (UCAN), a Crown Corporation, under Section 10 of the Atomic Energy Control Act, to be party to the joint stockpile agreement and to represent the Government of Canada's interests in the acquisition and disposal of the joint stockpiles. Under the agreement with Denison, which had been approved in principle in December 1970, the federal government undertook to contribute up to \$29.5 million to the program which provided for deliveries of up to 6,467,000 pounds of uranium oxide to the stockpile from Denison's Elliot Lake mine over a 4-year period commencing on January 1, 1971.

An Energy Policy for Canada

In June, on Cabinet approval, preparation of an energy policy study commenced, in terms of a Pilot Study proposal of January 1971, with the following areas to be reviewed in an order of priority commencing with security of supply followed by market allocation, ownership and control, government participation, environmental concerns, financing and balance of payments, government incentives, further processing, R&D, and rate of energy resource development. This detailed review of energy policy was to be coordinated by EMR, with participation by the National Energy Board and the Departments of Finance, Consumer and Corporate Affairs, National Revenue, and the Privy Council Office. The study was completed and published as a two-volume report in mid-1973 entitled "An Energy Policy for Canada".

Offshore negotiations

In July, it was decided to explore with the governments of Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland alternative methods of sharing offshore revenues that were more generous to the provinces than the existing 50/50 percent offer. The maximum extent of such a formula would be one that would provide 20 percent to be distributed among all four provinces, 50 percent to be given to the province off whose coast the revenue was derived, and 30 percent to be retained by the federal government.

Glance Bay heavy water plant

In July, a decision was made to authorize Atomic Energy of Canada Limited to assume responsibility for the rehabilitation of the heavy water plant at Glance Bay, Nova Scotia. The Minister of EMR was authorized to negotiate terms of an agreement with Deuterium of Canada Limited covering the rehabilitation of the plant. The terms were to include provision for recovery of the federal investment over a period of not more than 16 years. In September, it was further decided that in the event no firm competent to operate the plant was available, under terms acceptable to AECL, then it should be authorized to operate the plant as though it were an AECL facility.

Canada-Manitoba Study Agreement: Lake Winnipeg and the Churchill and Nelson Rivers

On August 24, the Government of Canada and the Government of Manitoba signed an Agreement, further to a 1966 Agreement, to undertake studies to determine the effects that regulation of Lake Winnipeg, diversion from the Churchill River and development of the hydroelectric potential of the Churchill River diversion route would likely have on other water and related resource uses, and to make recommendations for enhancing the overall benefits with due consideration for the protection of the environment. This major study was completed in 1975 and became the basis for future power development planning in northern Manitoba. The Federal-Provincial Agreement that had been signed in February 1966, provided for the construction by Manitoba of a power station at Kettle Rapids on the Nelson River and for diversion of waters from the Churchill River by means of a control dam at the outlet of Southern Lake. The federal government's commitment was limited to the construction of transmission facilities. Manitoba's decision to undertake the diversion followed an extensive period of investigation by the Federal-Provincial Nelson River Programming Board. That Board found that a

development program including the Churchill River Diversion represented the minimum development that could be considered economical in terms of Manitoba's power requirements and yet compatible with an eventual full development of the hydro potential of the area.

**Tanker transport
of Alaskan oil
- environmental
concerns**

The great concern of the Canadian government regarding proposals to transport oil by tanker from Alaska to the Puget Sound area, through coastal waters adjacent to Canada, was made known to the U.S. Government on a number of occasions in 1971, including an Aide-Memoire of August 18. Accompanying that document was a study entitled "The Environmental Consequences of the Proposed Oil Transport between Valdez and Cherry Point", which concluded that a major oil spill arising from large tanker operations would have disastrous effects for the environment and ecology in the Canadian, as well as U.S., coastal area, that a great deal of the damage would be beyond capacity to prevent or repair, and that much of the damage would be of a nature not measurable in any economic terms.

**Cape Breton coal
subsidy**

In October, provision was made for an amount of \$6.98 million to be included in 1971-72 supplementing estimates for increased operating losses of the Coal Division of the Cape Breton Development Corporation in calendar 1971. An additional amount of \$2.75 million was made available to the Sydney Steel Corporation to cover its obligations.

**Safeguards
agreement**

In November, a decision was taken to authorize Canada's representative to the International Atomic Energy Agency (IAEA) to sign the Canada/IAEA draft safeguards agreement.

**NEB denies gas
export
applications**

In November, the National Energy Board concluded that Canada's gas requirements, including existing export commitments, exceeded available Canadian reserves by 1.1 trillion cubic feet and, in the light of that supply deficit, three applications to export additional volumes of gas to the U.S. totalling 2.6 trillion cubic feet were denied. This was the first occasion in which all export requests had been turned down. The decision in August 1970 had denied one export application and reduced the licensed terms of three other applications. The overall reduction then was from 9 trillion cubic feet to 6.3 tcf. The Alberta government objected to the November decision, believing that the NEB's estimates of expected future requirements were unrealistically high.

**Canada-U.S.
relations on
northern
pipeline**

On November 19, the Minister of Indian Affairs and Northern Development, in a statement in the House of Commons, set out the government's position on a northern pipeline and it was decided shortly after to transmit a note to the U.S. State Department to convey formally the Canadian position with regard to an alternative Canadian pipeline route to the proposed trans-Alaska route. In his statement, the Minister advised of the continuing interest and willingness of the Government of Canada to examine and discuss any proposals relating to the transport of Alaskan petroleum resources through Canada to U.S. markets. He noted that the northern pipeline guidelines, announced on

August 13, 1970, made it clear that, in principle, oil and gas pipelines were acceptable to the Government of Canada but on conditions stated in the guidelines. He further indicated that studies relative to environmental protection were sufficiently completed to permit the examination of any pipeline application the government might receive.

Uranium mine
legislation

In December it was decided not to introduce a bill entitled "An Act Respecting Uranium and Thorium Mines" during the current session, but that consultations should be conducted with interested mining and exploration companies, using the provisions of the draft bill as a basis. Further action on the bill would await the result of those consultations.

Uranium Canada
Limited (UCAN)

Uranium Canada's first annual report was for the period ended December 31, 1971. The Crown company (UCAN) was incorporated on June 21 of that year. Its creation reflected the continued interest which the federal government had had in uranium matters since the inception of the Canadian uranium industry in the early 1940s. The earlier industry was faced with problems of achieving production quickly to meet an almost insatiable demand for uranium in a short time. The industry in 1971, and for most of the previous decade, had been faced with the problem of maintaining an operating core to be able to take advantage of the expected opportunities of the future. The federal government had a prominent role in maintaining that core through two successive stockpiling programs over the period 1963-1970 and by way of a joint venture stockpiling program established for the period 1971-1974 (see notes for December 1970 and June 1971). UCAN was established to hold title to the Crown's share of the joint venture uranium stockpile and sale of this uranium. UCAN was also authorized to act as sales agent for the general government uranium stockpiles purchased in the 1963-1970 period.

Canada
Development
Corporation

The Canada Development Corporation (CDC) was established in December to encourage greater Canadian participation in industry, including the oil and gas industry.

U.S. oil import
restrictions
crumble

By the end of December, the records for 1971 showed that the average daily exports of Canadian crude oil to the U.S. were 540,000 barrels. The quota, set by Presidential Proclamation, was continually being changed by the U.S. Administration because of accelerating demand for Canadian crude oil in the U.S. The quota for 1971, as set at the end of 1970, had been 450,000 barrels a day. In terms of an agreement reached in 1967 to restrain Canadian crude exports, the 1971 average should not have been greater than 358,000 barrels a day. By the end of 1972 there were virtually no import restrictions on Canadian crude entering the U.S. market, and by March 1973 Canada had to implement export controls because of the rapid draw-down on developed oil reserves in Western Canada.

Coal export
market trends

Coal export records available in December showed that exports of coal in 1971 totalled 6.6 million tons compared with 1 million tons in 1969 and amounts in the order of 700,000 tons for several years prior to 1969.

Notwithstanding this considerable increase, forecasts made in 1968 and 1969 had predicted rapid increases in exports to the level of 14 million tons by 1972 and over 26 million tons by 1975, with some predictions as high as 40 million tons for that year. These predictions of the late 1960s had been made on the basis of an expected continuing and increasing world deficit of coking coal. By 1972, when exports appeared to be levelling and remained at the 9-10 million ton per annum level for a period, it had become apparent that the expectations of a few years previously had been highly over-optimistic. The Japanese market, the main export market for Western Canada coal, had been in recession since early 1971. Coal companies were also experiencing heavy losses because of over-optimism as to cost performance when export contracts in the late 1960s had been signed. However, the coal industry remained optimistic for the longer-term and, in 1971-72 was predicting that exports would rise to the 20 million ton level by 1980.

**Extensions to
the Nelson River
transmission
system**

In December, expansion of the electrical transmission system connecting Manitoba's hydroelectric power sites to the Winnipeg area was announced in a joint federal-Manitoba statement. Under a 1966 agreement between Manitoba and the federal government, a high voltage direct current transmission (HVDC) system was being built by the federal government to be repaid by Manitoba over a 50-year period. It was agreed that Canada would complete its obligation by the purchase of a fourth module of AC/DC converter equipment at an installed cost of \$30 million for service in 1974. This addition was to be purchased from the supplier of the first three modules of mercury arc converter equipment, English Electric Company. The Government of Canada at this time indicated its willingness to discuss a new agreement covering the fifth and sixth equipment modules to increase the D.C. system capacity to 1600 MW, and reiterated its intention of continuing to evaluate the application of solid state thyristor valve equipment because there were Canadian manufacturers wishing to establish domestic capability in the design, application and manufacture of this type of converter equipment for power transmission purposes.

THE YEAR 1972**Uranium pricing**

In January, international consideration was being given to the possible improvement of the market price for uranium, through a meeting of Canadian, French and Australian officials but with no commitment to proceed beyond the discussion stage. A meeting of uranium producers, called by URANEX of France, was scheduled for February, with representation from Canada by an official of Eldorado Nuclear Limited. Discussions continued in March.

Northern pipeline studies

In February, approval was given on the proposed 1972-73 program of northern pipeline environmental, scientific and technical investigations, subject only to review and acceptance of the progress report on the first year's program, 1971-72. A \$15-million program had been approved in principle for this program to extend over 3 or 4 years.

Fundy tidal studies

The Tidal Power Review Board was established on February 29, and announced in the House of Commons on March 1, to reassess the economic feasibility of developing power from the tides of the Bay of Fundy. The Atlantic Tidal Power Programming Board had been set up in 1966. Its report of March 1970, following a 3-year study at a cost of \$2.5 million, concluded that the economic development of tidal power was "not feasible under prevailing circumstances". The Tidal Power Review Board was established to review the earlier report and to identify areas significant to the earlier conclusions which should be re-examined in the light of current and projected conditions. Discussions involving New Brunswick, Nova Scotia and the federal government had proceeded during 1971, with the provinces taking the initiative in endeavouring to get a new study underway.

IAEA Agreement on safeguards

An agreement between the Government of Canada and the International Atomic Energy Agency (IAEA) for the Application of Safeguards in connection with the Treaty on the Non-Proliferation of Nuclear Weapons was signed on February 21.

CANDU proposals for N.B. and Quebec

In March, a federal decision was made to negotiate with the Government of New Brunswick matters relative to a possible agreement on construction of one or two 600 MWe CANDU reactors in that province, while also discussing with Quebec the possibility of supplying a 600 MWe reactor and how it might fit into Quebec's general plans for power development. In June, it was decided to enter into negotiations with Quebec on the supply of such a reactor.

Uranium mining industry legislation

In April, the Minister of Energy, Mines and Resources made a statement setting out the reasons for delay in bringing forward legislation in 1972 dealing with the uranium mining industry, as had been planned in 1970. The delay had occurred because the Government was assessing broad policies with respect to questions relating to domestic control of the national economic environment and wished to review proposed legislation for the uranium sector in the context of a larger set of policy objectives. In addition, there had been less immediate need for this legislation because of a decrease in exploration activity due to declining prices.

Northern pipeline
environmental
-social
studies

On April 18, the Minister of EMR tabled in the House of Commons a listing with descriptions, of the types of environmental, technological, and economic studies being pursued by various government departments and agencies in 1972, under direction of the Task Force on Northern Oil Development. The studies were part of the three-year Northern Pipelines Environmental-Social Program, budgeted at \$15 million, in preparation for the examination and assessment of any applications made for the construction and operation of pipelines to transport northern oil and gas to southern markets. Thirty base line studies were in progress relative to pipeline design, wildlife, fish, water quality, terrain conditions, permafrost, land disturbances, oil spills, and socio-economic impact.

Canada-U.S. oil
relations

In April, the federal government decided that, in the next meeting of Canada and U.S. officials on the subject of oil security of supply and related matters, Canada's position would be made clear that it continued to object to U.S. quota restrictions on Canadian oil, and was not prepared to pay for lifting those restrictions. At the same time, it would be noted that access to U.S. oil markets was no longer the principal objective and that such access might require export control in a few years unless substantial discoveries were made in frontier exploration areas. However, the Canadian government was interested in working towards implementation of bilateral solutions to the security problem and, accordingly, Canada would be prepared to discuss with the U.S. informal arrangements to alleviate any shortages that might be caused by international supply interruptions. Canadian oil deliveries to the western U.S. could be increased in return for assistance the U.S. might be able to provide in eastern markets.

Canadian pipeline
route for
Alaska oil

In May, the Minister of Energy, Mines and Resources wrote to the U.S. Secretary of the Interior, further to a meeting in March, to set out the advantages of a Canadian pipeline route for Alaska crude oil, in terms of security of oil supply considerations, particularly for supply to the U.S. mid-continent area. An overland route would also avoid the environmental threat associated with tanker shipments along the West Coast. Environmental hazards would arise if the U.S. proceeded with plans for a trans-Alaska oil pipeline and tanker transportation to West Coast U.S. markets. Given the preparatory work that the federal government and industry had been doing in the Mackenzie Valley, the Minister had concluded that regulatory and governmental consideration could be commenced by the end of 1972 of an application to construct an oil pipeline overland from Alaska and, consequently, such an application could proceed as soon as a trans-Alaska application. However, plans remained uncertain, and controversy continued in both Canada and the U.S. over the related continental policy issue.

West Coast
tanker traffic
concerns

A unanimous vote in the House of Commons on May 15 supported a motion declaring that the movement of oil by tanker along the coast of British Columbia, from Alaska to Puget Sound in the State of Washington, was inimical to Canadian interests. Canada had been encouraging the U.S.

to consider an overland route instead of a trans-Alaska and West Coast tanker route for Prudhoe Bay crude but there were strong indications that the U.S. government and the oil companies preferred the latter route.

Energy policy study

In May the government gave further approval of a detailed study of a federal energy policy, using a framework developed by the Minister of EMR relating the policy to the broad objectives of economic growth and quality of life. It was also related to the concerns of employment, industrial and resource development, trade, Canadian ownership and control, and the environment. Policy constraints of resource adequacy, regional impact, inflation, capital and balance of payments were to be considered as well. The study proceeded and was published in mid-1973. (See notes for October 1970, January and June 1971, and June 1973).

A perspective on the oil and gas situation in mid-1972 - need for resource policy

A perspective on the oil and gas resource situation was provided in a Petroleum Society meeting in May in Calgary when concern was expressed about the very low discovery rate while, at the same time, Alberta was proposing to tax oil reserves, the federal government was removing the depletion allowance for developed oil reserves, and environmentalists were increasing their demands. Expectations were high relative to Mackenzie Delta exploration but not for the Arctic Islands because of difficulties foreseen in natural gas transportation. There was considerable optimism about east coast exploration prospects and for the oil sands, but with a wait-and-see attitude. A generally expressed view was that Canada needed to have well-designed resource development and export policies to ensure maximum benefits to the nation as demand grew for its energy resources in the course of the fully-expected energy shortage, particularly in the U.S. A principal concern centred on how Canada's frontier resources, including the oil sands, should be developed, at what cost and how the roles and revenue sharing positions of industry, provincial governments, and the federal government should be determined for these new ventures.

Forecast of \$5/bbl oil by 1980

At a meeting of the U.S. Independent Oil Producers Association in May, a senior official of the U.S. State Department predicted that the international oil price which was then at the \$2.50 barrel level would increase to \$5 by 1980. In view of the fact that the world price had been \$2.00 or less for over 20 years, this was considered to be a very bold forecast. The federal government based 1980 forecasts in its report "An Energy Policy for Canada", published in June 1973, on the \$5 a barrel projection. As a result of OPEC price and embargo initiatives in 1973 the price rose to \$5 by the end of 1973 and was \$11.25 by the end of 1974. Further price increases occurred in the 1970s and early 1980s to raise the price to \$32 by the end of 1980 and to the peak level of \$34 at the end of 1981 (all in \$U.S.).

Heavy water production

A review of the heavy water supply situation by AECL in June showed that despite a slow start, a substantial heavy-water production was being realized in Canada, although it was expected to continue to be in short supply

through 1974. The plant at Port Hawkesbury had been producing in 1972 at about 60% of design capacity after some delay relative to the scheduled start-up date of late 1969. The continuing delay in bringing into production the heavy water plant at Glace Bay, N.S. which had been scheduled for 1966, coupled with Ontario Hydro's large nuclear power commitment and AECL's assessment of prospects for its nuclear power marketing operations overseas, had led to the construction of the Bruce heavy water plant for production by the end of 1972. With production in 1973 from the Bruce and Port Hawkesbury plants forecast at 530 metric tons, AECL in mid-1972 had concluded that commitment of another heavy-water plant within 12 to 18 months was necessary because production from the Bruce, Hawkesbury and Glace Bay plants would be insufficient to meet expected domestic and export demand by the end of 1970s. In May 1985 a decision was taken to close the Port Hawkesbury and Glace Bay plants because of insufficient markets.

**Expanded northern
pipeline
guidelines**

In June, the federal government approved a set of expanded guidelines for northern pipelines further to the guidelines announced in August 1970. The expanded guidelines provided for greater detail on an initial pipeline corridor through the northern Yukon and up the Mackenzie Valley, or from the Arctic Coast; a comprehensive listing of environmental concerns that an applicant must respond to in some detail; and a more inclusive elaboration of social guidelines that would give high priority to the employment of native people and would encourage the participation of northern firms on pipeline work opportunities. The expanded guidelines were to be issued immediately as an expression of the government's current views on what such guidelines should contain, subject to review with Indian groups and others directly concerned, with the intention of bringing the final version of the guidelines into force by December 1, 1972. Documentation made available when the expanded guidelines were issued on June 28 provided an extensive overview of government policy on northern oil and gas development and of government programs in support of that development, including construction of the Mackenzie Highway which the Prime Minister had announced in May.

**Task Force
on Northern Oil
Development**

In July, the Task Force on Northern Oil Development was instructed, while proceeding with consultations relative to the recently-announced Expanded Guidelines for Northern Pipelines, to also continue discussions with industry on matters relative to route selection for northern gas and oil pipelines. Various methods of financing a gas pipeline development, including the terminable lease concept, and the terms and conditions for a pipeline right-of-way were also to be given further study in the light of advice to be provided by the National Advisory Committee on Northern Pipeline Financing.

**National Advisory
Committee on
Northern
Pipeline
Financing**

In July, a plan to establish a National Advisory Committee on Northern Pipeline Financing was announced. Its mandate was to present financing plans for a maximum of equity ownership to be offered to Canadian investors, with financial control being retained by

Canadians. Appointment to the Committee was to be from senior personnel in the banking and investment dealers communities, with representation also from the consulting economists, university and private engineering consulting communities (see March 1973 note).

Offshore
negotiations

In July, it was decided that the federal government should continue without change its position on offshore resource development regarding jurisdiction, administration and revenue sharing, but, at the same time, continue discussions with the Atlantic provinces, and with preparations for a meeting on August 23 at the First Ministers' level for the purpose of reviewing respective positions. A decision was also taken to begin work on a Reference to the Supreme Court of Canada on questions of ownership and jurisdiction with respect to mineral rights off the East Coast, so that draft terms of the Reference could be considered should the need arise.

Arctic Waters
Pollution
Prevention
Act proclaimed

The Arctic Waters Pollution Prevention Act came into force August 2 upon proclamation on that date. The Act applies to all Arctic waters in the region of the Arctic Islands, including Lancaster Sound, Barrow Strait, Viscount Melville Sound and McLure Strait which might be considered as parts of a 'Northwest Passage'. Authority is given in the legislation to seize a ship and its cargo whenever there are reasonable grounds to suspect that any provision of the Act or the regulations concerning pollution control have been violated. The definition of the application of the Act includes all waters of the region, "the natural resources of whose subjacent submarine areas Her Majesty in the right of Canada has the right to dispose of or exploit, whether the waters so described or such adjacent waters are in frozen or liquid state". The legislation is accordingly an assertion of Canada's jurisdiction over the entire Arctic Islands region including the straits, sounds and channels among them, and between them and the mainland of northern Canada.

Offshore
negotiations
- east coast

In August, the Prime Minister and the Premiers of the east coast provinces agreed to set aside questions of jurisdiction and ownership and to try to reach an agreement on the practical matters of administration and revenue sharing of offshore resources. In an address in May, the Premier of Nova Scotia had spoken of his government's great expectations for a vast new economic development based on oil and gas development in the Nova Scotia offshore.

Initiatives
to stabilize
uranium market

In August, the Minister of Energy, Mines and Resources issued a Directive to the Atomic Energy Control Board covering such aspects as minimum selling prices and volumes of sales to export markets. This was done in order to help to stabilize the uranium marketing situation at that time and to promote the development of the Canadian uranium industry. It followed from the June 1969 statement in which the government announced a uranium policy providing for the examination of all contracts covering the export of uranium and thorium to ensure that terms and conditions of such contracts would be in the national interest. The 1972 directive to the Atomic Energy Control Board took the form of the following amendment to Atomic Energy Control Regulations, as published in the Canada Gazette on August 23, 1972: "Section 201 of the Atomic

Energy Control Regulations is amended by adding thereto the following subsection: "A permit to export prescribed substances shall not be granted unless the Board is satisfied that the prices stipulated for, and the quantities of, the prescribed substance proposed to be exported meet such criteria, if any, respecting price levels and quantities as may specified in the public interest in a direction given to the Board by the Minister."

Oil and gas
resource
assessments

Pursuant to an announcement by the Minister of EMR in September that the Department of Energy, Mines and Resources would undertake a long-term assessment of Canada's oil and gas resources, data collection and preliminary analyses got underway.

CANDU for
Argentina

In November, Atomic Energy of Canada Limited received government approval to enter into a contract for the supply of a 600 MWe CANDU nuclear steam supply system in the amount of up to Cdn \$130 million to the Argentina government. This approval was conditional upon completion of agreements concerning safeguards and transfer of technology.

NEB forecast
of oil shortage
and need for
export controls

A National Energy Board staff report on "Potential Limitations of Canadian Petroleum Supplies", completed in December, concluded that Canada could no longer ensure future Canadian oil requirements if exports continued at expected levels. At the time of this study, the NEB forecast that the export market for Canadian petroleum could grow from 940,000 barrels a day in 1972 to 1.7 million b/d in 1985 while the domestic market, west of the Ottawa Valley, would increase from 750,000 b/d to 1.2 million b/d, for a total of 2.9 million b/d in 1985. The export estimate for 1985 assumed an export allowable in terms of the NEB export control formula; without such a control, the potential export demand would be 2.5 million b/d as early as 1978. Accordingly, the Board concluded that production from all domestic sources would not be able to supply the potential export and domestic market demand after 1973 and that, aside from exports, the declining Western Provinces' conventional maximum production rate would be unable to supply the domestic market by 1986. To meet domestic needs and allow for exports, under the NEB export formula, the Board was counting on Mackenzie Delta oil and significant amounts of oil sands and heavy oil by 1980. On the basis of this 1972 assessment, the Board recommended oil export controls in 1973.

AECB research
grants program

In December the Atomic Energy Control Board took a decision to commence support of mission-oriented research investigations as part of its research grants program which it had operated since 1947 in the field of nuclear research. The 1954 revision to the Atomic Energy Control Act noted that the Board may establish, through the National Research Council, scholarships and grants in aid for research with respect to atomic energy. The role of NRC in advising the AECB on awards to universities was formalized in 1967. Until 1972, all AECB funding was for research projects, usually for nuclear physics research. In that year, it was decided to direct grants to research

related to the Board's objectives in health, safety and safeguards. By 1976, it had abandoned academic research and was directing all of its funding to mission-oriented research to ensure that it received the independent advice and supporting information needed to carry out its regulatory functions with a minimum reliance on the facilities or information generated by those being regulated.

**The threshold of
great change**

The 1972 NEB analysis, released in December as noted above, and the 1973 decision to impose oil export controls illustrate the extent of the change in the Canada-U.S. oil trade situation in the early 1970s from that of most of the 1960s when Canada was constantly endeavouring to increase its oil exports to the U.S. against the barriers of that country's import control system. The 1972 analysis, in the light of subsequent international and domestic developments, also illustrates the unpredictability of energy supply and demand trends. The largely unexpected international and domestic events relative to the oil industry in the period December 1972 to December 1973/January 1974 brought greater change in the Canadian energy economy than had been experienced at any time since the Leduc oil discovery of 1947 and the events that quickly followed from it. As a result of much higher international prices caused by the OPEC price actions of 1973-74, and the energy conservation initiatives and depressed economic conditions that followed from the sudden 4-fold OPEC price increase, oil demand in the period 1972-1980 increased by an annual average of only 2% in contrast with the NEB assumption of 4%. Actual oil exports in 1980 were little more than one half of the Board's lowest estimate of permissible exports in 1980 and one quarter of its maximum estimate, the latter having been based on an expected supply of 600,000 b/d of Mackenzie Delta oil in 1980 which never occurred for various geological, socio-economic, and environmental reasons.

THE YEAR 1973**Combines
investigation
of oil pricing**

In February, an investigation of the oil industry was initiated by the Director of the Combines Investigation Branch, Department of Consumer and Corporate Affairs, as a result of a formal complaint filed with the Department by members of the Consumers Association of Canada. The complaint was made under section 7 of the Combines Investigation Act with reference to certain pricing and marketing practices in the petroleum industry in the period 1958-73. This investigation was continued throughout the 1970s and the Director of Combines Investigation submitted his report to the Restrictive Trade Practices Commission on February 27, 1981 under the title of "The State of Competition in the Petroleum Industry". This, in turn, led to a public examination of the findings and the calling of witnesses by the Commission. Its report was released on May 16, 1986. The Commission found no evidence of collusion in any sector of the petroleum industry.

**Northern pipeline
studies**

Cabinet approval was given in February to continue through 1973-74 the program of northern pipeline environmental-social, scientific and technical investigations. The Government's environmental-social program called for the publication, as they became available of 121 reports on all phases of environmental and social concern as related to northern pipelines.

**Crude oil export
controls -
Canada - U.S.
oil relations**

On March 1, crude oil export controls were established. Export control was implemented through the granting of licences by the National Energy Board under terms of Section 25 as amended, of the Part VI Regulations of the NEB Act. Immediately after, in April, the President of the United States suspended direct control over the quantity of crude oil and refined products which could be imported, and all tariffs on imported crude oil and products were also removed. Thus the bilateral situation of the 1960s was reversed from one of U.S. import controls determining the amount of crude oil that could enter that country to the new situation in which Canadian export control determined the amount of Canada's crude that would be permitted to move into U.S. markets, being surplus to reasonably foreseeable requirements for use in Canada.

**Canadian
oil export
restraints
in the U.S.
1962-1972**

In his appearance before the House of Commons Committee on National Resources and Public Works, on March 1, the chairman of the National Energy Board put on record the recent history of market development for western Canadian oil and noted the Board's concern over the lack of new oil discoveries, which had contributed to the decision to institute oil export control. Growth in the Ontario oil market for Western crude was small on an annual basis after the objectives for the domestic market under the National Oil Policy of 1961 had been essentially met in the mid-1960s. From 1962 until late 1972, growth of Canadian oil sales in the U.S. market had generally been constrained by U.S. policies, initially reflected in informal understandings relating to acceptable rates of export for semi-annual and, later, annual periods. In September 1967, Canada entered into arrangements covering the period 1968-71 which were associated with U.S. permission to

"loop" the Interprovincial-Lakehead pipeline system from Superior, Wisconsin to Sarnia, Ontario, via Chicago. In March 1970, before the 1967 arrangements expired, Canadian oil was brought under U.S. mandatory import control. This control became the basic determinant of production rates achievable by Western Canada producers. However, it did not serve as a constraint because of the rapidly growing U.S. demand for Canadian crude in the early 1970s.

Canadian oil
export control

Further to the above-noted review of the oil marketing record, leading to Canada's export control decision in March 1973, there were two occasions in which the marketing conditions outlined did not hold. From late 1966 until August 1968, oil transportation difficulties in the U.S., and in mid-1967 the exigencies of the Suez crisis, resulted in a relaxation of U.S. market restraints and Canadian exports moved into that market effectively unrestrained, limited only by the capacity of Canadian pipelines. In early 1973, the U.S. was again facing oil supply difficulties related to declining indigenous production and a tight overseas supply situation, and, accordingly, U.S. import restraints were relaxed. Again, Canadian pipeline capacity became a constraint following a very large growth in exports. In March 1973, exports averaged about 825,000 b/d compared with 576,000 b/d a year earlier. The increase itself was equal to total exports via the Interprovincial Pipeline system six years previously. Inasmuch as the industry had found much less oil than it had produced in the 3-year period, 1970-1972, a system of export controls was considered essential in the national interest of protecting future supplies for the domestic market.

National Advisory
Committee on
Northern
Pipeline
Financing

In March, the Minister of Energy, Mines and Resources established, in accordance with a plan announced in July 1972, a National Advisory Committee on Northern Pipeline Financing, and named 12 members from the financial community and 3 federal government members, to advise on the financial and economic impact of northern pipeline development. The Committee met three times in 1973, completed several studies and a set of financing guidelines, but did not continue its work following the announcement of the Berger Commission in March 1974 when pipeline companies planning applications phased out programs pending results of the inquiry.

Mackenzie Highway

The federal government in March approved the construction schedule for the Mackenzie Highway involving estimated expenditures of \$22.8 million in 1973/74 and probable completion to Inuvik by 1977/78. The Highway construction was being scheduled to offer maximum benefits to proposed pipeline construction which was assumed to commence by the winter of 1976/77. The plan to proceed with construction of the Mackenzie Highway had been announced by the Prime Minister in May 1972.

Columbia
River dam
- Mica

The Columbia River Treaty Mica Dam became operational in March. Construction contracts had been awarded in September 1967.

Report on
energy policy

In April, the report "An Energy Policy for Canada" was being finalized, preparatory to publication in the mid-year. The approach at this stage was to take a neutral stand on major issues, such as a national petroleum company, on which government policy had not yet been established.

Product export controls

Canada established petroleum product exports controls in June following the implementation of crude oil export controls in March. Shipment of most forms of petroleum to export markets thereby became subject to NEB licenses because of the recent large increases in exports in the face of declining producibility in Western Canada oil fields. Controls on heavy fuel oils, propane and butanes became effective in October, to complete the control system.

"An Energy Policy for Canada"

In June, the Minister of Energy, Mines and Resources released the 2-volume report "An Energy Policy for Canada" - Phase I. The purpose of the report was "to define more clearly the national framework into which provincial studies fit, to identify choices which must be made within the federal jurisdiction, and to provide a basis for choice by the Government and people of Canada". This was the first major energy policy analysis since the reports in the 1950s by the Royal Commission on Canada's Economic Prospects and The Royal Commission on Energy. It had been intended by the federal government to use the report as a vehicle for consultation with members of the public and provincial governments, and on the basis of the information in the report on the existing status of the energy economy and the various options for the future, to then proceed with Phase II to decide how, and with what instruments, existing energy policies should be altered. The dramatic turn of events in the international oil economy made it necessary for the government to deal with new challenges on an immediate basis. While many major decisions were made in the next two or three years, the federal government did not proceed with another full-scale energy policy planning study until 1976 when the report "An Energy Strategy for Canada - Policies for Self-Reliance" was produced (see April 1976 note).

New heavy water plant

In June, it was decided that Atomic Energy of Canada Limited should be authorized to build a new heavy water production plant with an output of 500 tons per annum at a site in Canada to be approved after consideration of alternatives. In November Gentilly, Quebec was the site chosen. During 1973, work on an analytical study of the Canadian nuclear program was underway with emphasis on nuclear energy in the context of an overall energy strategy, the demand prospects for CANDU reactors and related heavy water requirements, and the economic impact of foreign and domestic sales of CANDU reactors.

Joint Transportation Development Program - N.E. British Columbia

In July, the federal government approved in principle the agreement negotiated with British Columbia concerning a program of joint rail and port development in northern B.C., subject to certain conditions. The two governments had agreed that the program would contain specified principles and provisions relative to rail development, port development and the related infrastructure. The railway program was to be concerned with extensions of the B.C. Railway and the Canadian National Railways in northern B.C. The port development program was to relate mainly to the National Harbour at Prince Rupert. The related infrastructure program would ensure that necessary related transportation infrastructure including roads, airports, air facilities and air services was provided in a manner complementary to overall regional development. This agreement subsequently became directly relevant to northeastern B.C. coal development which proceeded during the latter part of the 1970s.

Uranium enrichment

Because the federal government had received several inquiries concerning its attitude towards the construction of uranium enrichment facilities in Canada by private industry, a statement was issued in August indicating that the government was prepared to negotiate inter-governmental agreements ensuring the protection of foreign classified technology licensed to industry in Canada for a uranium enrichment plant, if such a plant was shown to be in the national interest and if the terms were acceptable to the government. Factors which the government would consider in assessing a proposal included the optimum use of Canadian energy resources and the extent to which Canadians would participate in the financing, engineering, construction, operation, supply of materials and equipment, ownership and management of the facility.

Stockpile sale
of U_3O_8 to
Japan

In August, the federal government, through Uranium Canada sold 1000 short tons of uranium oxide (U_3O_8) to Japan from the government-owned stockpile and from the government-Denison joint venture stockpile, with delivery to take place over the period 1977-81. From 1963-70, the government built up an uranium stockpile of nearly 10,000 tons to maintain a basic production within the uranium industry in order to stabilize dependent mining commodities. Additional purchases of up to 6.5 million pounds in the period 1971-74 were involved in the government-Denison joint stockpile.

Provincial views
of the federal
role in a
national energy
policy

In a Conference of Premiers held in August there was debate on the lack of national energy policy although there was praise from the Premier of Alberta for the recently-issued report "An Energy Policy for Canada - Phase I", as a good base document from which policy options could be extracted. The Premier of Ontario emphasized Ontario's needs for cheaper oil, gas and coal. The exchanges among Premiers demonstrated a broad range of views as to the role and authority of the federal government in establishing a national energy policy. This debate came at a time a few months prior to the Middle East oil crisis when international oil prices were greatly increased. The period in the mid-1970s that followed was one of considerable controversy in Canada as to the federal government's energy policy role, particularly in matters of oil pricing.

1970-1973
crude oil price
changes in
Canada

After a long period of price stability during the 1960s, western Canada crude oil prices increased by 25 cents a barrel in December 1970. As the international oil price structure changed, there was a further 10-cent increase in November 1972; 20 cents in January 1973; 25 cents in May; and 40 cents in August, at which time light gravity crude oil posted prices were in the order of \$4.00 a barrel.

Price restraint
program

On September 4, the Prime Minister announced in the House of Commons a program of voluntary price restraint. With regard to energy, the oil industry was asked "to refrain from making further price increases affecting Canadian consumers before January 30, 1974." This program applied to gasoline and heating oils.

Oil price guidelines

On September 13, the Minister of Energy, Mines and Resources issued a statement on the guidelines, relating to the Prime Minister's request of September 4, for oil price restraint. The price restraint guidelines applied to crude oil and the main petroleum products. The Minister advised of the government's intention of monitoring all factors relating to the "freeze". He also advised of his intention to seek authority from Parliament to enable the establishment of a control mechanism whereby higher prices in the U.S. market would not automatically increase oil prices in Canada. An export tax and an oil marketing board were under consideration.

An export tax on oil

On September 21, a Ways and Means statement gave notice of the federal government's intention to amend the Excise Tax Act to provide that, effective October 1, 1973, a tax would be imposed and collected on each barrel of crude oil exported from Canada to recover from the exporter any amount by which the export price exceeded the domestic price. Subsequently, the amount of the tax set for October and November was 40 cents a barrel, and \$1.90 for December to ensure that Canadian oil exports were priced at the full competitive market even though a price restraint program was being maintained for the domestic market to the benefit of Canadian consumers. At this time, it was not planned to extend the voluntary price freeze on Canadian crude oil, announced in September, beyond the end of January 1974 but, after that time, to base it on the average price of international crude oil landed in Montreal. The intention was to ensure that the domestic price of crude oil maintained a close relationship to the international price and also to the need to ensure the timely development of Canadian energy resources, while at the same time ensuring that prices to consumers were kept at the lowest level possible consistent with the adequacy of current and future supplies of oil and gas in Canada.

Technical Advisory Committee formed

On October 19, the day following the announcement by the Arab oil exporting countries of a cut in oil production of 5 percent to be followed by an additional 5 percent reduction each month and an embargo on oil exports to the U.S. and Holland, the Minister of Energy Mines and Resources met with oil company presidents to review the overseas oil supply situation. One outcome of that meeting was the formation of a Technical Advisory Committee (TAC) on Petroleum Supply and Demand, to advise the government on oil supply developments during the emergency.

Emergency Supply Contingency Planning Committee

On October 20, an Energy Supply Contingency Planning Committee was set up to examine the options open to the federal government relative to energy supply and demand, and to recommend a form of graduated response in terms of events which would restrict supplies of oil available to Canada. It was estimated that Arab action would result in a cutback of about 10 percent of Canada's foreign oil imports, resulting in a shortage of home heating fuel of 4 to 5 million barrels in the winter of 1973-74.

Oil supply emergency preparations

In November a decision was taken on a voluntary plan to conserve energy and on the preparation of a mandatory allocation system for use if required in 1974. This decision was taken at the time when an Arab oil embargo had been put into effect and there was strong

upward pressure on oil prices. In view of this development, a number of emergency measures were under consideration, to increase the supply of oil, including: an increase in Alberta oil production; the feasibility of moving crude oil to Montreal via Vancouver, the Panama Canal and Portland, Maine, and the feasibility of transporting increased quantities of oil by the Interprovincial Pipeline system to Toronto and by rail to Montreal after freeze-up of the St. Lawrence Seaway; changes in refinery procedures to maximize middle distillate yields; and purchase on federal government account of such quantities of middle distillates as were on option to Canadian companies, from offshore sources, for use in government buildings in cases where companies would not exercise their options.

Roumanian fuel oil purchase

On November 5, Governor-in-Council authority was given to the Department of Supply and Services (DSS) to purchase oil from overseas sources. The Energy Supply Contingency Planning Committee had been advised of the availability of 1.5 million barrels of heating oil from Roumania and Caribbean sources. This could not be imported by companies because of its very high cost in relation to frozen Canadian selling prices but, in view of a new estimate of a projected shortage of 9 million barrels of No. 2 heating oil, DSS announced on November 9 that it would arrange for the purchase of heating oil supplies from the Roumanian and Caribbean sources. At the time, the government was under criticism for not moving more quickly to ensure adequate supplies of heating oil for the 1973/74 winter. In the spring of 1974, 5 months later, when it turned out that not all of the supplies of this expensive oil were needed, the government was criticized for its costly expenditures. The event illustrates the extent of national concern at a time of possible energy shortage. However, such events are soon forgotten in times of energy surplus, and the security of supply issue has remained a difficult challenge in energy policy formulation.

East-West oil price issue in Canada

On November 22, the Prime Minister spoke to the nation on national T.V. to provide a background to the serious oil supply problem facing all countries and to describe measures being implemented to protect Canadian consumers. He noted the oil price changes since the 1960s when the National Oil Policy (NOP) provided for the supply of western Canada oil as far east as the Ottawa Valley while cheaper oil imports were used in Quebec and the Atlantic Provinces. That price situation was now reversed but in the period of the 1960s, under the NOP, consumers in Ontario and to the west had paid at least \$500 million more than they would have paid for foreign oil imports in order to help Alberta develop its oil industry. This became an issue in the mid-1970s, when under price restraint, Alberta oil producers complained they were not able to sell at world price levels while Ontario consumers argued that their support of the Alberta oil industry in the 1960s, when U.S. import policies curtailed Canadian export growth, warranted western cooperation in the 1970s in a time of price escalation and supply uncertainty.

Energy emergency measures

In a detailed statement to Parliament of November 26, the Minister of Energy, Mines and Resources reviewed the steps that had been taken to protect Canadian oil consumers in the coming winter, including emergency oil shipments

from the West Coast via ship through the Panama Canal to Montreal. He also explained actions taken by the federal government to reduce energy consumption in federal facilities and asked industry and the public to adopt the voluntary conservation guidelines that the government had developed for building heating, power usage and transportation. He further advised of the government's intention to introduce legislation for an Energy Supplies Allocation Board having the authority to make allocation directives to ensure equitable distribution of all petroleum products to wholesalers.

**U.S. decision
against a
Mackenzie Valley
oil pipeline
for Alaska oil**

In November, the U.S. Administration and U.S. oil companies took a final decision to transport Prudhoe Bay crude oil via a trans-Alaska pipeline route and by tanker down the Pacific Coast to Puget sound and California ports. At that time, immediate interest in a Canadian oil pipeline, via the Mackenzie Valley, declined but the Canadian government continued its efforts to dissuade the U.S. government from the plan to ship Alaska crude to refineries on Puget Sound, via the Juan de Fuca Strait because of the environmental hazards. Notwithstanding these efforts, the U.S. government proceeded with the plan in the mid-1970s. The trans-Alaska oil pipeline was scheduled to go into operation late in 1977, over 9 years after the Prudhoe Bay discovery. Feasibility studies for an oil pipeline to transport Prudhoe Bay oil and Mackenzie Delta oil up the Mackenzie Valley had been initiated in 1968 immediately after the Alaska discovery. A group of major oil companies operating in Canada formed a study group called Mackenzie Valley Pipe Line Research Limited and it carried out extensive pipeline research at Inuvik and along the proposed route to determine whether an oil pipeline through permafrost areas would be technically and economically feasible. This study was completed in 1972 and it concluded that a large diameter pipeline could be constructed to take delivery of Prudhoe Bay and Mackenzie Delta oil for transportation to U.S. and Canadian markets but the U.S. government and oil companies decided on the trans-Alaska route. The trans-Alaska Pipeline Bill was signed by the U.S. President on November 16, 1973 and pipeline construction permits were issued in January 1974.

**Energy Supplies
Allocation Board**

The bill to establish an Energy Supplies Allocation Board was introduced in the House of Commons on December 3 and, after extensive debate, was given Royal assent on January 14, 1974. Upon ratification by Parliament of the declaration of a national emergency caused by energy shortages, the government could authorize the establishment of a program for the mandatory allocation of petroleum products, and also a system of documentary rationing in the event mandatory allocation failed.

**A new national
oil policy**

On December 6, the Prime Minister made a major statement in the House of Commons on a new national oil policy. The new policy was defined as being concerned with the creation of a national market for Canadian oil; a pricing mechanism to provide sufficient incentives for the development of oil resources; measures to ensure that any escalation in returns and revenue as a result of any higher prices would be used in a manner conducive to security and self-sufficiency; the establishment of a publicly-owned

Canadian petroleum company principally to expedite exploration and development; the early completion of an oil pipeline to serve Montreal and as required more eastern points; and intensification of research on oil sands technology to permit their full and rapid development. It was further decided to extend the freeze of the prices of domestically-produced oil until the end of the winter. The statement of a new national oil policy ended the NOP of 1961 which had established a market for Canadian crude as far east as the Ottawa Valley.

Oil export tax legislation

On December 14, a bill to provide for the imposition of an oil export charge was introduced in the House of Commons. During the debate it was agreed to extend the oil export tax through February and March, 1974 at \$6.40 a barrel. The level had been 40 cents in October and November, \$1.90 in December 1973, and \$2.20 in January 1974. The bill received Royal Assent on January 14, 1974. The proceeds of the oil export tax up to January 31, 1974 were shared on a 50/50 basis with the provinces. Decision on the proceeds of the export charge was to be determined on the basis of the outcome of the First Ministers' Conference in January 1974.

Offshore negotiations

In December the government concluded that a proposal of the Premier of Newfoundland for the solution to the East Coast mineral rights situation was unacceptable and could not be used as a basis for future discussions. The federal government believed that administration and ultimate decision-making authority regarding offshore mineral resources must remain essentially federal in view of the many factors and responsibilities involved of a national character, including: uniform and efficient management, standardized policies of resource management, optimum conservation practices, control of export arrangements, establishment of Canadian criminal and civil law in the Offshore, and negotiations and agreements with foreign States. At the same time, the federal government stood ready to continue negotiations with the four Atlantic Provinces and Quebec.

A national petroleum company

In December, the government reached a decision in principle on the establishment of a national petroleum company which could engage in the following activities: explore for conventional oil and gas in Canada; make investments to develop Canada's oil and gas resources and, in particular, to accelerate the development of the oil sands in those parts of the deposit not exploitable with existing technology; operate as a state buying agency for foreign oil and oil products; and possibly engage in refining and marketing of petroleum and petroleum products.

Oil sands research

A federal decision was taken in December to allocate \$40 million for a research and development program in the Alberta oil sands over the following five years.

West Coast tanker concerns

Consideration was given during 1973 to the hazards of potential tanker traffic along the West Coast from Alaska to Puget Sound refineries in the U.S., and in December it was decided to propose to the U.S. the formulation of a West Coast Environmental Protection Agreement to provide for tanker traffic management, oil spill clean-up, compensation and liability, and research.

**Alberta Petroleum
Marketing
Commission**

In December, the Alberta government passed the Petroleum Marketing Act which made provision for the establishment of the Petroleum Marketing Commission, a Crown company, designed to give the Province powers to set oil prices within Alberta and to strengthen ownership and control of its oil resources.

**Mackenzie Valley
pipeline inquiry**

In December, the federal government announced its willingness to process an application for a gas pipeline right-of-way through the Mackenzie River Valley immediately upon its receipt, and also announced its intention to establish a Commission of Inquiry, under the Territorial Lands Act, to assess the regional socio-economic and environmental implications of such a pipeline (see March 1974 note on the Berger inquiry).

**Come-By-Chance
petroleum
refinery
Newfoundland**

The petroleum refinery of Newfoundland Refining Company Limited went into production in December following an elaborate opening ceremony on October 10. Construction had started in 1970, after a number of delays and, by the time the refinery was completed, costs had risen to \$250 million. The original cost estimate was \$165 million, with the plant initially scheduled to be completed in 1968. From the start of operations, the refinery did not produce the quantity and quality of refined petroleum products expected and, with ever-increasing financial problems, it was shut down in March 1976 after going into receivership. The plant was mothballed pending a possibly successful effort to re-open it. British and Japanese credit agencies and banks had supplied the majority of the financing for this failed project. In the late 1970s, Petro-Canada took over the management of the property, but all attempts in the 1970s and into the mid-1980s to rehabilitate the project failed. The promoter of the project, John Shaheen of New York, had made very little financial commitment to this large 100,000 barrel per day refinery.

**Nelson River
power**

Stage 1 of the Nelson River Transmission System, pursuant to the Canada-Manitoba 1966 Agreement, went into service on December 31, 1973.

THE YEAR 1974

OPEC oil price increases

On January 1, the price of OPEC crude oil was close to \$12.00 (US) a barrel, compared with \$2.00 in late 1970. International crude oil prices had commenced to increase in 1971 as a result of OPEC members having signed the Tripoli Agreement in April of that year. This was followed by the Geneva Agreement of January 1972 (along with the Geneva II Agreement of June 1973 to provide for revaluation of prices relative to the dollar); and the Participation Agreement of December 1972. As a result of these price agreements and other actions, there was a six-fold increase in the three-year period but with the larger part of that increase occurring in the change that took place on January 1, 1974. A rise in tanker freight rates in this period also significantly increased the delivered price of crude oil to world markets. With the outbreak of the Arab-Israeli war on October 6, 1973, some of the OPEC producers raised their oil prices by 70%. Arab countries also instituted oil production curtailments, followed by selective embargoes, directed chiefly at the U.S. and Holland.

Electrical energy research

In January, the federal government decided to offer financial support to a cooperative research program by electric utilities, as proposed by the Canadian Electrical Association, with the initial grant not to exceed \$425,000 and based on a matching electric utility allocation of \$1 million. Future contributions would be contingent on satisfactory on-going program performance.

Nuclear station financing

In January, a government decision was taken to provide for federal participation in the financing of an initial nuclear power station for a provincial utility by way of loans at Crown Corporation borrowing rates in the amount of half the cost (see January 22 note).

Electrical interconnection financing

In January, the government decided to indicate its willingness to participate in electric power systems interconnections studies, and in the construction of facilities to permit regional interchanges of electrical energy. Federal government participation would consist of 50 percent of the costs of studies, and loans for amounts of up to 50 percent of the capital cost of regional interconnection systems (see January 22 note).

Task Force on R&D

In January, a government decision was taken to establish a Task Force on Energy R&D, reporting to the Minister of EMR to develop, implement and review a coordinated federal energy R&D program. The Department of EMR was given authority to establish an Office of Energy R&D (OERD) to serve as a Secretariat to the Task Force and its Committees, and as a central focus for energy R&D in the federal government. The Task Force was subsequently established as the Panel on Energy Research and Development (PERD). It is a federal interdepartmental committee of Assistant Deputy Ministers. PERD's program is divided into seven Tasks: Task 1 - Energy Conservation; Task 2 - Oil Sands, Heavy Oil and Coal; Task 3 - Fusion; Task 4 -

Renewable Energy; Task 5 - Alternative Liquids Fuels; Task 6 - Oil, Gas and Electricity; and Task 7 - Coordination (see May 1975 note).

Oil Import Compensation

The Oil Import Compensation Program became effective on January 1 to provide for a single crude oil price across Canada, subject only to transportation and quality differences, in order to lessen the impact on consumers of rapidly-escalating world oil prices. A Cabinet Decision of March 7 provided the authority to implement the program, effective January 1. Until the Petroleum Administration Act was passed on June 19, 1975, this major program operated under the following authorities: the Imported Oil and Petroleum Products Compensation Regulations (SOR/74-232) of April 9, 1974 for the period January 1 - March 31, 1974; a series of five special warrants pursuant to Section 23 of the Financial Administration Act for the period April 1 - October 31, 1974 when Parliament was not sitting; and the Oil Import Compensation Regulation of November 5, 1974 (SOR/74-627) and of March 12, 1975 (SOR/75-140) for the two periods through to June 19, 1975.

Coast to Coast Pipelines

On January 16, the Minister of Energy, Mines and Resources announced a policy of an all-Canadian, coast-to-coast pipeline network to develop self-reliance in oil and to further economic development throughout the country. Details on the proposed extension of the Interprovincial Pipeline to Montreal were also made known. The existing pipeline through Sarnia should be extended to Montreal as soon as possible, be reversible, and have an initial capacity to transport 250,000 barrels per day with a possibility for an increase to 500,000 barrels per day.

First Ministers' Conference on Energy - oil pricing, electrical interconnect- ions, uranium

A First Ministers' Conference on Energy was held on January 22. In addition to discussing the matter of an oil price increase, this was also the occasion on which the federal government announced programs of assistance to encourage the expansion of electrical energy production based on nuclear energy and the interconnection of provincial utilities to ensure greater efficiency and security. A policy statement was made concerning the protection of uranium reserves for the domestic market, further processing requirements, stockpile use, and uranium exploration. It was agreed to continue the freeze on petroleum product prices until April, both east and west of the Ottawa Valley line. First Ministers endorsed the single oil price policy.

Eldorado Nuclear exploration program

In January, the Minister of EMR announced that the Crown company Eldorado Nuclear Limited would be provided with funds to finance an exploration program in Canada. The company was to continue its mining and marketing role, with the expectation that it would be expanded should the exploration program prove to be successful.

Office of Energy Conservation

An office of Energy Conservation was established within the Department of Energy, Mines and Resources in January to develop and recommend a program of energy conservation and to play a coordinating role among all institutions and authorities having responsibilities relative to energy conservation.

Arctic Gas Pipeline

In February it was decided by the federal government that scientific, technical and social investigations related to the possible construction of an Arctic gas pipeline should be accelerated.

Oil price increase to \$6.50

The First Ministers' Conference on Energy was reconvened on March 27 and an agreement was reached on an oil price increase to \$6.50 a barrel from \$3.80, effective April 1. The \$6.50 price level was to be maintained until June 30, 1975. It was also agreed to finance the higher cost of foreign oil imported into eastern Canada through revenues generated from an oil export charge collected by the federal government. The Prime Minister reported on the details of the agreement in a statement in the House of Commons on March 29, 1974. The Export Charge was increased to \$4.00 per barrel, effective April 1, and remained at that level until June 1 when it was increased to \$5.20. It replaced the Oil Export Tax.

Berger inquiry announced

In March, Mr. Justice T.R. Berger was asked by the Government of Canada to inquire into, and report upon, the terms and conditions for a right-of-way that may be granted for a natural gas pipeline to cross the Northwest Territories and the Yukon. For this purpose, he was appointed head of the Mackenzie Valley Pipeline Inquiry Commission. At that time, companies that had been conducting feasibility studies relative to pipeline construction for the transportation of Arctic gas to southern markets phased out their programs pending the result of Commission's inquiry. Canadian Arctic Gas Pipeline Limited had filed an application in March to construct a gas pipeline along the Mackenzie Valley from the Arctic coast.

Speech from the Throne

In the Speech from the Throne, presented on February 27 and debated in March, considerable attention was given to the international oil crisis and to the measures the federal government had taken to deal with the impact on the Canadian economy of greatly increased international oil prices. The government was endeavouring, in cooperation with the provinces, to ensure that the difficult transition to higher oil and energy costs occurred in an orderly way so as to not cause unnecessary disruptions in economic activity, employment and prices.

Oil Import Cost Compensation Program

A Cabinet decision of March 7 provided authority for the Minister of Energy, Mines and Resources to implement an Oil Import Cost Compensation Program designed to offset the recent increases in overseas host government take and host government participation by OPEC. The unit cost of the program was not to exceed \$6.50 a barrel in the first half of 1974. The duration of the program was to be determined by the federal government's policy as to oil price levels in Canada in relation to prices prevailing on the world market. Payments to refiners and others who imported crude oil and petroleum products became effective for oil shipped on, or after, January 1, 1974. A Cabinet Decision of March 21 provided details for the administration of the Program and specified that the Energy Supplies Allocation Board would be responsible for monitoring prices and costs, and adjudicating appeals.

Heavy water plants in N.S.

In March, a decision was taken to complete the rehabilitation of the heavy water production plant at Glace Bay, N.S.. Negotiations were to take place with Canadian General Electric to determine the price of purchase of its Port Hawkesbury heavy water plant.

International uranium marketing arrangement

In March, the federal government approved in principle, subject to further consideration by Ministers, the terms of the uranium marketing arrangement agreed to among international producers at Johannesburg in January 1974 whereby the quota period for uranium marketing would be extended to 1981-83.

Petroleum Administration Act

In the debate on Second Reading in April of Bill C-18, the Petroleum Administration Act (PAA), the Minister of EMR noted that this new legislation provided support for three policy principles: that the price of oil should move upward to encourage exploration and development of oil and gas resources; that about one-half of Canadian crude oil production, that is exported, should be sold at the opportunity price in U.S. markets; and that the proceeds from such sales in the U.S. at a price higher than the domestic Canadian price should be employed to reduce the exposure of consumers in eastern Canada who would otherwise have to pay full international prices. This also provided for a single basic crude oil price to all Canadians except for transportation differentials. Part I of the PAA was designed to deal with petroleum export charges, Parts II and III with domestic oil price restraint, and Part IV with petroleum import cost compensation. Bill C-18 died on the Order Paper when the government was defeated in May 1974 and the price, export and import provisions of the bill were operated on a voluntary basis pending the re-introduction of a bill for the PAA. However, Petroleum Products Compensation Program Guidelines were approved by Treasury Board on June 13. The PAA, as Bill C-32, was introduced in October 1974 and received Royal Assent in June 1975, but from April 1, 1974 throughout the 1970s the price of domestic oil was established by informal agreement between the federal government and the oil producing provinces.

Tax base erosion

In May the Minister of Finance introduced a budget that included a number of measures to deal with the erosion of the federal tax base that had occurred as a result of action in March by the Alberta government to increase its oil royalty rate to 65 percent of the price in excess of \$3.50 per barrel, with a comparable increase in the natural gas royalty. These federal measures included non-deductibility of provincial royalties in computing federal income taxes. The federal budget was not implemented at that time as the government was defeated; however, some of the May budget measures were reintroduced in the budget in November following the election of a majority Liberal government in July.

Gentilly heavy water plant

In May a decision was taken to fund the amount of \$361.8 million for construction and start up of the heavy water plant (LaPrade) near Gentilly, Quebec, the loan to be repaid by AECL out of revenue from the plant over a period of 20 years commencing in 1981.

**P.E.I.
electrical
cable**

In May, it was decided to provide federal financial contributions for an electrical interconnection between P.E.I. and the mainland through construction of an interconnection cable and associated land line facilities, with federal assistance being a maximum of 75 percent of the total cost of the cable project, to a maximum of \$12 million.

**N.B. nuclear
plant at Point
Lepreau**

In May, the federal government decided to provide loans to cover 50 percent of the total cost of a 600 MWe CANDU nuclear power plant in New Brunswick, subject to the New Brunswick Electric Power Corporation meeting certain prerequisites. This offer was in accordance with federal policy, announced at the First Ministers' Conference on Energy in January 1974, providing for financial support of the first nuclear unit in any province.

**The Alberta oil
royalty and
federal tax
controversy**

In June the Premier of Alberta advised the Prime Minister that the proposed federal tax measures introduced in the May budget, particularly insofar as they would affect petroleum production with its base in Alberta, would seriously jeopardize the Canadian petroleum industry and related employment. One matter at issue was the proposal to cancel the tax provision whereby provincial royalties in the past could be deducted in computing a taxpayer's income. Alberta had also in September and October 1973, and in January 1974, registered strong objection to the imposition of the federal export tax on crude oil. For its part, Alberta had on December 14, 1973 eliminated any maximum ratio of gross royalty on oil production from Alberta Crown leases, and passed another Act to establish the Alberta Petroleum Marketing Commission. The Alberta Premier had advised the Prime Minister in March 1974 that the Alberta Government considered royalty revenues from depleting natural resources as capital receipts for assets sold and the plan was to place 50-75% of any incremental royalties in a capital trust fund rather than into the general revenue account of the Provincial Government. The Premier further announced the province's intention to increase its royalty on oil production by an average of 65% of the incremental revenues of any price increase over the existing average price of \$3.50 per barrel, with the result that the average royalty rate was increased from 22% to 40% of gross production. This allowed the Alberta government to take about 40% of the gross production as royalty in kind through the Alberta Petroleum Marketing Commission, as of April 1, 1974. The extent of the royalty increase was of great concern to the federal government - hence the budget provision of May 1974, confirmed in the November budget, with modifications by both governments in November and December (see notes for those months).

**Uranium Resource
Appraisal Group**

The Uranium Resources Appraisal Group (URAG) was established within EMR to undertake annual assessments of Canada's uranium resources, and to assign a domestic reserve allocation to Canadian producers. Its first report was released in June. Subsequent reports produced on an annual basis were widely recognized, nationally and internationally, as authoritative assessments of Canada's uranium reserves and resources.

Canada-U.S.
Oil Spills
Contingency
Plan

In June, the Canadian and U.S. governments signed the Canada-U.S. Oil Spills Contingency Plan directed to measures relating to contingency planning for oil spills; vessel traffic management; environmental research; and the principles of liability and compensation relative to West Coast oil tanker traffic. In view of the decision taken by the U.S. government in November 1973 to transport Prudhoe Bay oil to market via a trans-Alaska pipeline and oil tankers, efforts were being made to lessen the hazards associated with oil tanker movements near the B.C. and Washington coasts.

Pipeline
Application
Assessment
Group report
- Mackenzie
Valley

In July, the federal government's Pipeline Application Assessment Group completed an analysis of an application made in March by Canadian Arctic Gas Pipeline Limited (CAGPL) to construct a pipeline to transport natural gas from Alaska and the Mackenzie Delta to southern markets. The Assessment Group had been assembled by the government to make a primary assessment of the application for use by government departments and agencies concerned with the application, the National Energy Board in its hearings of the application, and by the Berger inquiry which had been established in March. The Assessment Group's analysis included a list of Requests for Supplementary Information which was submitted to CAGPL. These requests were for information which would assist the NEB and the Berger inquiry in matters relative to the social, environmental and economic impact of the proposed gas pipeline. The Pipeline Application Assessment Group also prepared a major report on the results of its studies and appraisals of social and environmental matters that would require attention in the construction of a pipeline in the Mackenzie Valley region. The report "Mackenzie Valley Pipeline Assessment" was published in November 1974.

Uranium export
policy

A new uranium export policy was announced by the Minister of EMR in September. It provides for protection of uranium reserves for the domestic market. Further processing requirements were defined. A new stockpile use policy was also announced.

Gas export price

In September following the report submitted by the NEB recommending that the export price of natural gas be based on its commodity value in the related export market area, the federal government established a uniform border price of \$1(U.S.) per Mcf., representing a 40 percent increase. (By September 1977 the price had increased in several steps to \$2.16). The increase in the border price flowed back to producers but it did not constitute an increase in the wellhead price as the federal government did not wish to increase the domestic price.

Columbia River
Treaty-tenth
anniversary

On September 16, the tenth anniversary of the signing of the Columbia River Treaty, several reviews and papers on the history and progress of the Treaty were published. They reviewed events leading up to the Treaty and the payment of \$273.3 million (Cdn) by U.S. utilities for downstream power in return for which B.C. agreed to build three dams - Mica, Duncan and Arrow - on the Columbia River and to operate them in such a way as to produce optimum power and flood control benefits in Canada and the U.S.

Notwithstanding the impact of inflation on the cost of the Treaty storage projects, and the related controversy this had created in Canada, proponents of the program on the occasion of the tenth anniversary concluded that: "if the power and flood control program set out in the Columbia River Treaty and related agreements was better than any comparable alternative in 1964, as it clearly was, its comparative value is even greater ten years later."

Upper Churchill
power project
completed -
dispute with
Quebec follows

In September, the Upper Churchill Falls power project was completed at a cost of \$1 billion and capable of producing 5,225,000 kW of power, one of the largest civil engineering projects in the world. In May 1974, the Premier of Newfoundland announced his government's decision to acquire the Churchill Falls (Labrador) Corporation in order to ensure that the main beneficiaries of this and any subsequent hydroelectric power developments in the Province would be its residents. In May 1976, the Premier wrote to the Premier of Quebec, further to discussions concerning Newfoundland's access to power from Churchill Falls which had been largely committed to Hydro-Québec by a 1969 contract. Newfoundland had concluded it could not proceed with development of the Lower Churchill, at Gull Island, and urgently needed a new source of power for the Island of Newfoundland. The Newfoundland Premier advised of his government's intention of seeking clarification of its legal rights in the courts, an intention that was recorded in the Newfoundland House of Assembly on June 1, 1976. Newfoundland was demanding that its recapture of power from the output of the Upper Churchill was to be at the same price being paid by Hydro-Quebec Falls (Labrador) Corp. in terms of the 1969 contract (see also notes for December 1969 and December 1980).

Speech from
the Throne

In the Speech from the Throne on September 30, reference was made to the importance, in dealing with inflation, to increasing the supply of energy through various measures including the regulation of oil and gas prices in a manner which would encourage the necessary exploration and development in Canada.

Quebec position
on oil and gas
prices

Following the decision early in 1974, to extend the Interprovincial Pipeline to Montreal, plans commenced for completion of the line by 1976. However, in October the Quebec government took the position that oil delivered to Montreal should not be at a higher price than deliveries to Ontario. At that time, the Quebec government was looking for increased deliveries of natural gas, believing that there were distinct advantages in replacing electric power loads, by natural gas supply. Cost escalation in the James Bay hydroelectric project had become a matter of concern. For a desired build-up of its petrochemical industry, Quebec wanted both oil and gas supplies delivered to Montreal at Ontario prices.

Petro-Canada

A bill to establish Petro-Canada was introduced in Parliament on October 3. It received Parliamentary approval, and subsequently Royal Assent was obtained in July 1975.

NEB recommends
oil export
reduction to
avoid shortage

In November, the Minister of EMR announced the October findings of the National Energy Board with respect to the exportation of oil and the federal government's decision to accept the Board's findings that steps should be taken to reduce exports of oil with the view to providing additional protection for Canadian oil requirements. The NEB had warned that Canadian oil resources, as then known, were inadequate to meet future Canadian requirements and, accordingly, it recommended that exports be phased out. Canadian requirements included an allocation of 250,000 barrels a day to the Montreal market as soon as the IPL extension was completed. The expectation in 1974 was that there would be a resurgence in production as the frontier areas and the oil sands opened in the 1980s. The challenge for the intervening years was to maintain a high degree of self-sufficiency. The export limit in 1975 would be 800,000 b/d, and 550,000 b/d in 1976.

Royalties
non-deductible
in new budget

In November the federal government brought down a budget, reintroducing some of the measures of the May budget in revised form. Royalties, taxes and other like payments to provincial governments were made non-deductible for income tax purposes. The replacement of automatic depletion by earned depletion was accelerated from January 1977 to May 1974, with the maximum depletion being reduced from one third to one quarter of production expenditures. Other changes included reduction in the allowable rate of claiming development expenditures to 30 percent from the previous 100 percent but exploration write-offs remained at 100 percent. While the corporation income tax on resource profits was increased from 46 to 50 percent, a special abatement from federal tax, together with a provincial abatement of 10 percent, reduced the net rate of tax from petroleum profits from 36 to 30 percent in 1974, 28 percent in 1975, and 25 percent thereafter.

International
Energy Agency
(IEA)

Throughout 1974, Canada participated in international preparations leading to an "Agreement on an International Energy Program (IEP)" and establishment of the International Energy Agency (IEA). The Agreement was signed in November. The objective of the IEP was designed to promote secure oil supplies on reasonable and equitable terms; to take common effective measures to meet oil supply emergencies; to provide cooperative relations with the oil producing countries and with other oil consuming countries; to play a more active role in relation to the oil industry; and to reduce dependence of IEA members on imported oil by undertaking long-term cooperative measures. IEA was the industrialized countries' response to the Arab oil embargo of 1973-74 and the rapid rise in oil prices imposed by OPEC.

Petroleum
Administration
Act debate

Bill C-32 Petroleum Administration Act (PAA) was introduced on October 24 and debated in November and December. The predecessor Bill C-18 had died on the Order Paper when the government was defeated in May. Bill C-32 was an Act to impose a charge on the export of crude oil and certain petroleum products, to provide compensation for certain petroleum costs and to regulate the price of Canadian crude oil and natural gas in interprovincial and export trade. Debate on this bill included a broad-ranging

review of oil and gas developments since the OPEC price and embargo initiatives of late 1973, and of the steps the federal government had taken to try to deal with the impact on the Canadian economy of those initiatives. There were also references to the confrontations, as between the federal and provincial governments, on oil tax and revenue matters that had characterized 1974, and to the cutback in oil industry activity in Western Canada that had resulted from the uncertainties during the year relating to prices, taxes and incentives. A number of drilling rigs were moved south to the U.S. at this time in the expectation of finding better operating conditions, but a number of them returned to Canada within a year or two. Debate on Bill C-32 continued in 1975. It was approved by Parliament, and Royal Assent was given on June 26, 1975.

**Energy Supplies
Allocation Board
(ESAB)**

Order-in-Council P.C. 1974-2419 of November 5, 1974 made Regulations Providing for Compensation to Certain Refiners and Importers of Crude Oil and Petroleum Products for Consumption in Canada. Also under these Regulations, the Energy Supplies Allocation Board became the responsible agency for the Oil Import Compensation Program, this function was returned to EMR in July 1976.

Tax revision

In an address of December 9 to a meeting of Federal-Provincial Ministers of Finance, the federal Minister of Finance reviewed the issue of taxation of resource industries which had been so dominant during the year and set out the federal case for having taken action on the November budget to prevent any further eroding of the tax base through the provincial royalty systems.

**Uranium and
Nuclear Policy
- safeguards**

In December, the Minister of EMR announced more stringent safeguards in respect of the sale abroad of Canadian nuclear technology, facilities, and material. Earlier in the year, in September, the Minister had announced criteria which would apply to provide for an orderly growth of the uranium industry while protecting the needs of domestic nuclear programs. These criteria included the setting aside of sufficient reserves of uranium for domestic use to enable each nuclear power reactor operating, committed for construction or planned for operation 10 years into the future, to operate at an average annual capacity factor of 80 percent for 30 years from the start of the period, or in the case of reactors which were not in operation, for 30 years from their in-service dates. The upgrading of safeguards policy announced in December called for binding assurances, from the importing country, covering peaceful uses of Canadian-supplied nuclear equipment and materials for their lifetime in accordance with IAEA safeguards; and binding recognition of Canada's right of prior consent over re-transfers, reprocessing, and enrichment of Canadian-origin nuclear materials. The stringent safeguards announced in the government's policy statement of December 20, followed upon the Indian nuclear explosion of May 1974 using a nuclear facility provided by Canada in good faith, and the new safeguards requirements, left no doubt that they were of paramount concern to the Canadian Government.

Canada-U.S.
pipeline treaty
concept

In December, Canada and U.S. had preliminary discussions on the possibility of a pipeline treaty which would be based on two main premises: continuity of supply and non-interference with the oil or gas of one country passing through the other country to market destinations in the country of origin, and the concept of non-discrimination as to pipeline tariffs and other costs of operation. Consideration of a pipeline treaty came about as a result of an inability of either country to make progress towards the construction of a northern gas pipeline for Prudhoe Bay gas or Mackenzie Delta gas.

Northern gas
pipeline
backgrounder
- CAGPL, Maple
Leaf, El Paso

In the early 1970s interest began to rise in the possibilities of constructing a natural gas pipeline to take delivery of Prudhoe Bay gas and Mackenzie Delta gas for delivery to southern markets. Two competing projects carried out considerable research and then, at the urging of the Canadian government, they combined into the project, Canadian Arctic Gas Study Limited (CAGSL). After extensive feasibility work, that consortium of 27 companies was reconstituted as Canadian Arctic Pipeline Limited (CAGPL) and it proceeded with an application to Canadian government agencies, with its first filing being in March 1974. In mid-1974, a third project was formed, the Maple Leaf Project, sponsored by Foothills Pipeline Limited, a subsidiary of Alberta Gas Trunk Line Limited (now called Nova). This system was to take delivery of Mackenzie Delta gas for Canadian markets only. On the U.S. side, El Paso Natural Gas Limited in 1973 had launched a competing project to the Canadian Arctic Pipeline project. It was to take Prudhoe Bay gas along a route across Alaska parallel to the Trans-Alaska oil pipeline, with the gas to be transported as LNG by tanker from a southern Alaska port. At the end of 1974, none of these projects was proceeding, while the Berger inquiry had only completed its preliminary hearings preparatory to the start of formal hearings in the spring of 1975.

Northern pipeline
environmental-
social studies

In December, the Environmental-Social Committee of the Task Force on Northern Oil Development completed its report on environmental and regional socio-economic matters relative to a northern pipeline. The 197-page report provided up-to-date information on major aspects that would be affected by a proposed pipeline and it drew conclusions regarding the nature and direction of implied effects on these aspects. The report described the natural environmental setting of the study area (Mackenzie Valley and northern Yukon), the local social and economic setting, the resource use setting, and implications of proposed northern pipelines.

Gas shortage
looming

At the same time in 1974-75 that progress in gaining access to Arctic gas appeared to be stalled, National Energy Board hearings were signalling a gas shortage in the remainder of the 1970s because gas resource development in Alberta had slowed down while demand was increasing. A delay in establishing a domestic pricing policy for gas was causing delays in producer decisions while the relatively low price for gas, in contrast to rising oil prices, was generating increased demand for gas. No solution to the shortage had appeared except the availability of frontier gas and now, at the end of 1974, it too appeared doubtful.

Alberta reduces royalties

In December, following the federal tax announcements, the Alberta government reduced its oil and gas royalties and announced a major program to increase exploration and development. It undertook to refund that portion of the Alberta Corporations Tax arising because of the non-deductability of royalties in the new federal tax system; and to make other tax adjustments. It also increased drilling subsidies. Saskatchewan also introduced measures to rebate a portion of the increased tax liabilities arising from the non-deductability of royalties.

Uranium ownership control - FIRA

In December it was decided that control of the ownership of uranium and thorium mines should be effected through the Foreign Investment Review Act (see October 1975 note).

Energy conservation information program

In December a decision was taken to have the EMR Office of Energy Conservation develop and undertake an information program designed to inform the Canadian public about the importance of end-use conservation and to provide suggestions on how to effect it. The Office was also to coordinate programs of R&D on energy conservation as part of an overall energy research and development program which would identify, define and evaluate opportunities for improving the efficiency of energy use and for reducing the demand for energy.

Nelson River Transmission system equipment sourcing

In December, the federal government decided to provide loans up to 50% of the cost of financing the expansion of the Nelson River transmission system by means of the first and second bipoles, provided it would be consistent with the policy for regional electrical interconnections adopted by Cabinet in January 1974. A key feature of that policy was that purchase of equipment involving federally sourced funds should exploit opportunities for industrial and technology development in Canada. The Premier of Manitoba had been advised in a letter of May 31, 1972 from the Minister of EMR that federal financial assistance for the Nelson project would be linked with emphasis on technology and development, a position that had been repeated in many previous communications. However, Manitoba had decided to purchase additional equipment for the first bipole of the system from offshore sources and, at the end of 1974, appeared to be preparing to purchase some \$90 million of equipment for the second bipole from a West German consortium because it would be 7.7% cheaper (see note for March 1977).

THE YEAR 1975Glace Bay
heavy water
plant

In January, a decision was taken to have Atomic Energy of Canada Limited make an offer to purchase the Glace Bay heavy water plant from the Province of Nova Scotia for 20 equal installments of \$3.3 million each, commencing on the date of capitalization, or January 1, 1978, whichever was earlier.

Income tax
changes and
the issue of
revenue
sharing

In January, debate on second reading in the House of Commons commenced on Bill C-49 to amend the statute law relating to income tax. The purpose of the bill was to implement changes in personal and corporate income tax provisions proposed by the Minister of Finance in his budget of November 18, 1974. In the January 28, 1975 debate, the Minister of Finance reviewed the federal government's position on resource taxation which had been the subject of great controversy with the oil producing provinces in 1974 on the issue of what constituted a fair sharing of revenue as between industry, the provinces and the federal government. The November budget had proposed the disallowance of the deductibility of oil and gas royalties and other similar levies after the provinces had raised royalty levels from moderate to much higher levels. This action was taken to prevent the provincial levies from undermining the federal Treasury. Following the Canadian oil price increase in April 1974 from \$3.80 a barrel to the new level of \$6.50, Alberta introduced an incremental royalty of 65 percent of the increased price and Saskatchewan's royalty increase was equivalent to 100 percent of the increased price which, without a change in the royalty deductibility provision of the federal corporate income tax, would have reduced the federal share of oil production revenue to 6 percent from the existing 13 percent.

International
price for
Synchrude

In January, the federal government decided that international oil prices could be applied to the production of synthetic crude produced at the Synchrude plant in the oil sands area of Alberta. There would be an upward quality adjustment in the price, less transportation costs from Montreal back to Synchrude plant. In addition, royalties paid to the Government of Alberta were to be deductible for income tax purposes.

Synchrude oil
sands plant to
proceed with
government
partnership

The Governments of Canada, Alberta and Ontario in February reached an agreement with the three participants of Synchrude Canada Limited to form a new partnership to continue to build and to operate the Synchrude oil sands plant. The federal, Alberta and Ontario shares of the equity were 15 percent, 10 percent and 5 percent, respectively, the federal commitment being \$300 million.

National conser-
vation policy

In February the Minister of EMR announced an energy conservation program for Canada, directed to reducing the rate of growth in energy consumption in the residential, industrial and transportation sectors. A major statement introducing the program was made in the House of Commons on February 6.

Gull Island
project - Lower
Churchill

In February, the federal Cabinet authorized a 30-year loan of \$343 million in respect to 50 per cent of the cost of a transmission system from the proposed 1800 MW Gull Island hydroelectric station on the Lower Churchill River to terminal points on the Island of Newfoundland, a distance of about 690 miles including a crossing in a 11.5 mile tunnel of the Strait of Belle Isle. In March 1974 the Newfoundland government had asked the federal government for financial assistance on the project following a number of studies dating from the late 1960s. A joint federal-provincial task force reviewed the project in 1974 and confirmed Newfoundland's contention that the Gull project represented the least cost method of meeting the expected growth in electrical energy demand in Newfoundland. In 1975 Newfoundland continued its technical studies and, by March 1975, revised estimates had raised the expected total cost of the project from the 1974 estimate of \$1.1 billion to \$1.4 billion, excluding interest during construction of \$409 million. Further revisions resulted in a September 1975 total cost estimate of about \$2.3 billion which, among other factors, led to further delays until February 1978 when a new federal-Newfoundland agreement in principle was reached to establish the Lower Churchill Development Corporation as a basis for the development of the hydroelectric potential of the Lower Churchill River.

Oil price
guidelines

In February, further oil price guidelines were announced to provide for oil companies to recover non-crude oil cost increases.

Task Force
on Northern
Oil Develop-
ment reports

In March, the four-year Environmental-Social Program of the Task Force on Northern Oil Development was completed. The Task Force was established in 1968, as an interdepartmental group, to advise the federal government on all regional and national matters relating to northern oil and gas development. The Environmental-Social Committee was one of six committees of the Task Force. By the end of 1974-75, some 275 reports based on work carried out under that Committee's program had been published, including the general overview report "Mackenzie Valley-Northern Yukon Pipelines: Socio-economic and Environmental Aspects."

Montreal oil
pipeline (IPL)
deficiency
agreement

A Deficiency Agreement was concluded by the federal government and Interprovincial Pipe Line Limited (IPL) in February as a pre-condition to construction of the oil pipeline extension from Toronto to Montreal. This Agreement included a provision whereby, if in any calendar year of its operation, the operating revenue of the IPL section from Sarnia to Montreal was insufficient to meet fixed and variable costs, the company would be paid the amount of the deficiency by the federal government. The Agreement was signed on April 8, 1975.

Oil sands
environmental
study

Agreement was reached between the federal and Alberta governments in March on the establishment of a \$40 million program, over 10 years, for coordination, funding and implementation of the Alberta Oil sands Environmental Research Program to obtain data that could be used to devise measures for the protection of the environment during the recovery, transport and processing of oil sands products.

West Coast
transfer
shipments
threat

A voluntary traffic plan for Canada/U.S. joint management of ships in the Puget Sound/Juan de Fuca area of the West Coast went into effect in March following expressions of concern on both sides of the border about the hazards of tanker shipment of Alaska crude oil along the B.C. coast, scheduled to begin in 1978.

Agreement on
construction of
IPL pipeline
to Montreal

Final agreement was reached in March between the federal government and Interprovincial Pipe Line Limited on the construction of a crude oil pipeline extension eastward of Toronto to Montreal, a proposal that had been considered at various times since the late 1950s. The oil embargo and large oil price escalations in the winter of 1973-74 had convinced the federal government of the need to provide consumers in Eastern Ontario and Western Quebec with access to more secure domestic oil supplies.

Petro-Canada
bill tabled

Bill C-5, An Act to establish a national petroleum company was debated in March and a major statement was made by the Minister of EMR on second reading, on March 12, on the objectives for the company.

Foothills Pipe
Lines Ltd. Maple
Leaf application

In March, Foothills Pipe Lines Ltd. submitted an application to the NEB and the Department of Indian and Northern Affairs to construct its Maple Leaf gas pipeline along the Mackenzie Valley from the Mackenzie Delta to northern Alberta. The Foothills Maple Leaf project had been formed in mid-1974. Prior to that time, Canadian Arctic Gas and Foothills had worked together in Canadian Arctic Gas Study Limited relative to a Mackenzie Valley application which had been filed in March 1974.

Canada/U.S.
energy relations

At a meeting in March of the Canadian/American Committee, the U.S. government position was one of acceptance of the need for Canada to cut back on its oil exports to the U.S. but strong resistance to any curtailment of natural gas exports, the view being that any breach of current export contracts would be a serious blow to Canadian/American relations. At that time there was evidence that deliverability from conventional gas reserves in Canada was declining.

Fundy Tidal
studies

In March, negotiations were commenced toward an agreement with the provinces of N.B. and N.S. to undertake studies of the development of tidal power in the Bay of Fundy, with the studies to be generally in accordance with the recommendations contained in the report of the Bay of Fundy Tidal Power Review Board, dated September 1974. The federal government committed to 50% of the estimated cost of \$3 million, with the two provinces to share the balance of the costs. The Review Board, consisting of representatives of Canada, N.B., and N.S., would continue to oversee the conduct of the studies.

An end of
reliance on
the market
system in oil
pricing

Energy policy planning in March, following assessments of international and domestic trends since publication of the report in mid-1973 of "An Energy Policy for Canada - Phase I", was leading to the conclusion that the general characteristics of the energy policy planning environment implied an end of reliance on the

market system for determining oil and gas prices for the foreseeable future, and an acceleration in Canada, and many other countries, of attempts to move towards greater self-reliance in energy at greatly increased costs.

First Ministers' Conference

A First Ministers' Conference on Energy was held on April 9-10 but no consensus was reached as to the timing of the next crude oil price increase. Consuming provinces resisted further increases, scheduled for July 1, 1975. The First Ministers' Conference had failed as a forum for price negotiations.

Petroleum Administration Act passed

The Petroleum Administration Act was passed by the House of Commons in April and subsequently by the Senate. This legislation gave the federal government the ultimate authority over oil and gas pricing. The Act received Royal Assent in May. It came into force in June, 1975.

Canadian Energy Research Institute

In April the Department of Energy, Mines and Resources, the Alberta Department of Energy and Natural Resources, the Private Energy Research Association (a group of energy companies), and the University of Calgary entered into an agreement to establish and fund the Canadian Energy Research Institute. The Agreement was signed on March 24, 1975 and execution of the Agreement by the Minister of EMR, on behalf of the federal government, was approved on April 8 by P.C. 1975-744. The purpose of the Institute, located in Calgary, is to investigate energy problems, in particular the medium and long-range problems of the energy sector in Canada, and to develop a recognized and respected economic research capability in all energy matters.

NEB report on gas supply and requirements

In a report entitled "Canadian Natural Gas Supply Requirements", dated April 1975, the National Energy Board concluded that an actual and potential shortage of natural gas, until natural gas from Frontier areas was connected, resulted from two factors: a lack of adequate growth in deliverability due to low discovery rates and a lack of incentive to explore and develop new reserves; and a high rate of growth in gas demand in Canada partly because of underpricing of gas in relation to other fuels. The Board made a number of recommendations aimed at alleviating the impending shortage in the 1970s, including measures for raising prices, conserving energy, and placing conditions on export commitments so that priority could be given to Canadian demand (see July note).

Natural gas export price increases

In May, the Minister of Energy, Mines and Resources announced further changes with respect to the pricing of natural gas exports to the United States. They were scheduled to increase to \$1.40/Mcf effective August 1, 1975 and to \$1.60 effective November. An export price of \$1.00 had become effective on January 1, 1975. The policy was to have natural gas exports priced in a competitive relationship to energy alternatives in the U.S., and to have the price phased to the equivalent price of crude oil in the domestic market.

Energy R&D
program
activity
increased

In May, the federal government decided to give high priority to the funding of new energy R&D programs, responding to the priorities of Canada's energy policies and requirements. A new program and organization structure was adopted, consisting of six Tasks to develop and implement the program. EMR's Office of Energy R&D (OERD) was to be strengthened to serve as a focus of federal energy R&D activities and their extension nationally and internationally. The six Task related objectives were identified as follows: reduce consumption of energy and/or increase efficiency; increase domestic non-renewable energy production; substitute other energy sources for oil and gas; develop nuclear capability; exploit energy resources; and improve transportation and transmission systems.

Construction of
IPL extension
to Montreal
authorized by
NEB

On May 20, the National Energy Board authorized Interprovincial Pipe Line Limited (IPL) to start construction of a 520-mile oil pipeline between Sarnia and Montreal, with an initial capacity of 300,000 barrels a day and provision for expansion to 600,000 barrels a day. The NEB conducted hearings over the period May 14, 1974 to April 11, 1975 relative to the \$185 million project.

June 1975 budget:
oil and gas
prices
increased;
excise tax on
gasoline levied

The federal budget brought down in June provided for an increase in the crude oil price to \$8.00/barrel, from \$6.50; a special 10 cent excise tax on motor gasoline for non-commercial use; the increase to \$1.25/Mcf, effective November 1, 1975, of the Toronto city-gate price of Alberta natural gas; and an increased tax incentive to those companies that increased exploration activities. The 10-cent excise tax on gasoline was designed to close the gap between the cost of oil import compensation and export charge revenues although it was not designated as such.

Petroleum
tax system
modifications

The June budget introduced two modifications to the taxation system for petroleum to take effect in 1976. The special tax abatement introduced in November 1974 was to be replaced by a resource allowance, by which companies could deduct 25 percent of their adjusted production income. This resource allowance recognized the special position of the provinces in respect of resources and met, to a degree, the request for some form of deductibility of provincial levies. Since the resource allowance was based on production profits before the deduction of exploration and development, it also increased the incentive to explore and develop. At the same time, the corporation tax rate was reduced from 50 percent to 46 percent, the same rate applying to most other corporate activities; the net federal tax rate, because of the withdrawal of the resource abatement, increased from 25 percent to 36 percent, but it now applied to a lower tax base. These changes reduced slightly the anticipated federal share of resource revenues and increased substantially the incentives to explore for and develop new petroleum resources.

Petroleum
Administration
Act in force

The Petroleum Administration Act (PAA) came into force in June providing a legislative base for Oil Import Compensation which had been administered under regulations since June 1974. Under Part II, Division II of the PAA, the federal government was given powers to enforce the price of crude oil in interprovincial trade if agreement

could not be reached with a producer province. Similar powers were provided under Part III with respect to natural gas pricing (see November 1974 note). The Petroleum Administration Act (S.C. 1974-75 c.47) also gave authority to the National Energy Board to administer Part I of the Act dealing with petroleum export charges, making this function effective from April 1, 1974. Part IV of the Act provided for compensation of certain petroleum costs.

Canada/U.S.
oil exchanges

Canada/United States understanding was reached on oil "swapping" arrangements in June. Following bilateral discussions, the two governments implemented an arrangement whereby companies were permitted to complete commercial exchanges of oil, if consistent with broad energy policy guidelines and if they were designed to assist raw material supply to Canadian-dependent U.S. refiners while affording commercial benefits to the Canadian exchangers. Over the previous 10 years, a number of U.S. oil refining companies, situated near the Canadian/U.S. border, had relied for an important portion of their refinery feedstocks on crude oil and other hydrocarbons purchased from Canadian suppliers. Reflecting declining production and increasing domestic demand forecasts, the National Energy Board had released in November 1974 a schedule of declining petroleum feedstocks available for export for the period 1975 through 1983 when exports would be terminated completely. In an effort to alleviate the problem being faced by U.S. refiners and other end-users of Canadian petroleum feedstocks, the two governments concluded that exchanges of oil between U.S. and Canadian refining companies would be an effective way of dealing with the problem. Canadian supplies delivered to U.S. areas in proximity to the international border in western Canada would be offset by U.S. supplies delivered to refineries in eastern Canada.

Obligations
underlying
nuclear policy

In an address to the Canadian Nuclear Association in June, the Prime Minister identified three obligations underlying the Canadian government's nuclear policy: the obligation to share nuclear technology with other countries thereby contributing to the quest for social and economic justice in the developing countries; the obligation to insist on the most stringent of safeguards to ensure that nuclear devices, materials and technology from Canadian sources are not used for explosive or illegal purposes; and the obligation to be supportive of Canadian initiative and competence in technologically advanced energy fields, including nuclear energy, thereby to provide safe sources of energy, protect the environment and foster a competitive industry.

Reduction in
provincial
royalties

In July, Alberta reduced its effective royalty rate for oil from 65 percent to 50 percent, on that portion of the price between \$6.50 and \$8.00 a barrel. Saskatchewan also initiated tax modifications.

Oil price
guidelines

In July, federal government oil price guidelines were announced to provide for an increase in the wholesale price of oil products, equivalent to the \$1.50/barrel increase in crude oil, effective 45 days following July 1 when the crude oil price became effective.

NEB report
on natural gas
supply and
requirements -
government
response

In a news release of July 15, the Minister of Energy, Mines and Resources commented on the Natural Energy Board's report "Canadian Natural Gas Supply & Requirements" which was prepared following extensive public hearings held across Canada in late 1974 and early 1975, and published in April. The Minister noted that the Board's report confirmed earlier concerns that natural gas supplies would not be adequate in the near term to meet both projected increases in domestic demand and existing export commitments. Some curtailment of export contracts was accordingly indicated while growth in demand would have to be restrained until frontier supplies of gas became available. The last major commitment of natural gas to export had been in 1970 when certain surpluses were declared, but since then, new discoveries had not taken place as expected. The OPEC oil price increases had left gas underpriced in the domestic market with resultant demand increases. Price adjustment was now underway and conservation programs had been initiated. In its April report, the NEB also set out procedures for determining gas surpluses.

The gas export
cut-back issue

The NEB report on Natural Gas Supply & Requirements led immediately in July to a consideration of the extent and method of phasing down gas exports having regard to the requirement under the NEB Act to protect future Canadian requirements and, at the same time, being as responsive as possible to U.S. concerns regarding the dependence of certain areas on Canadian gas supplies. The Minister noted that: "Agreements will be required which are flexible as to the amount and timing of any cutbacks in exports; which focus not only on exports but equally on reductions of unnecessary or wasteful consumption in Canada; which avoid the seemingly simple solution of attempting to meet the problem entirely at the expense of the U.S. customers; and which maintain the essential principle that after reasonable consultations, Canadian authorities must make the decision as to the quantities of Canadian gas to be exported." At the same time, the U.S. Administration had made clear its concern about any unilateral action by Canada to cut off or reduce gas exports under existing long-term contracts. The circumstances in mid-1975 regarding natural gas supply and requirements illustrate well the difficulty of maintaining the delicate balance between supply and demand, and the importance of price in that process.

Petro-Canada
legislation
approved

In July, legislation to establish a national petroleum company, Petro-Canada, was approved by Parliament and Royal Assent was given on July 30. The purpose of the Petro-Canada Act: "is to establish within the energy industries in Canada a Crown owned company with authority to explore for hydrocarbon deposits, to negotiate for and acquire petroleum and petroleum products from abroad to assure a continuity of supply for the needs of Canada, to develop and exploit deposits of hydrocarbons within and without Canada in the interests of Canada, to carry out research and development projects in relation to hydrocarbons and other fuels, and to engage in exploration for, and the production, distribution, refining and marketing of, fuels." The Act was proclaimed on July 30.

Polar Gas Project

The federal government in July approved the participation by Petro-Canada in the Polar Gas Study Group to help the development of an information base on the technical feasibility as well as on the economic, social and environmental costs and benefits of transporting natural gas from the high Arctic to the Canadian market.

Oil Import Compensation Program

The Oil Import Compensation Program was amended in July so that compensation for crude oil imports would be paid on a flat rate basis rather than using rates varying with crude type, source and landing points. Compensation was based on the difference between the theoretical average cost of three foreign crudes and equivalent quality Canadian crude at Toronto. To protect domestic refineries, petroleum product compensation was set at \$1.50 per barrel below the crude oil rate.

Columbia River plant - Libby

The Columbia River Treaty Libby Generation plant on the Kootenai River in the U.S. became operational and the plant was dedicated by U.S. President Ford and the Hon. Donald S. Macdonald on August 24.

Northern gas pipeline applications

In August the National Energy Board announced that it would commence hearing the applications of Canadian Arctic Gas Pipeline Ltd, and Foothills Pipelines Ltd. on October 27. Thus, the hearing process was commencing after at least five years of preparation involving initially two groups, then one large consortium, and then the realignment of participants again into the two groups noted above. Canadian Arctic Gas Study Ltd. continued the program commenced by the two initiating groups and on March 21, 1974 it made application, under the name of Canadian Arctic Gas Pipe Line Ltd., to Canadian and U.S. authorities to construct a gas pipeline to take Alaska gas across the Yukon and deliver it, along with Mackenzie Delta gas, through a 48-inch pipeline to southern markets. Foothills Pipeline, whose principals were participants in the Canadian Arctic Gas Pipe Line proposal until they left that group in mid-1974 to establish their own project, filed with Canadian authorities in March 1975 to construct a pipeline along the Mackenzie Valley to take delivery of Mackenzie Delta gas only. Mr. Justice Berger's Inquiry, to examine regional, social, environmental and economic aspects of the application for a pipeline right-of-way started its formal hearings in March 1975 after a year of preliminary study.

Natural gas revenue flowback and pricing decisions

An agreement was reached in September between the federal government and the Government of Alberta on natural gas pricing and on the flowback to producers of extra revenue from gas at the higher export price. It was a matter of policy to phase the export price of natural gas to commodity value with competitive fuels in export markets. The border price had been increased to \$1.00/Mcf on January 1, 1975. It was further increased to \$1.40/Mcf in August 1975 and to \$1.60 in November. The effect of the domestic and export pricing decisions, and of the export flowback provision, had been to increase the field price of Alberta natural gas to about 95¢/Mcf in the latter part of 1975 which, in turn, began to stimulate exploration and development of new gas resources.

Dominion Coal Blocks

In September, a recommendation was made by the Minister of EMR for a federal exploration program in the Dominion Coal Blocks in southeast British Columbia. The possibility of opening up this major resource, estimated at 8.6 billion tons of bituminous coal, had been under consideration for many years. The Government of Canada holds rights to the 50,000 acres of coal-bearing lands of the Coal Blocks under terms of the Crow's Nest Pass Act of June 29, 1897 but a clause of that Act had stipulated that the coal could not be sold at a price exceeding \$2.00 per ton. In addition, during the 1960s and 1970s, the British Columbia Government had challenged the Federal Government's ownership of the coal rights. While a number of companies had expressed interest in the 1960s and 1970s in developing this resource, particularly in relation to export opportunities, these two constraints had prevented any mine development activities. In addition, with the decline in world coal demand in the late 1970s and early 1980s, and the related decline in coal prices, there was less incentive to open up this resource. Detailed resource evaluations were also stalled. The \$2.00 selling price restraint was eventually removed with the passing of the Western Grain Transportation Act in late 1983 and in the mid-1980s consideration was being given by the federal and B.C. Governments to the possibilities of negotiating the ownership issue.

Second NEB report on oil supply and requirements

In September, the National Energy Board issued its second report on Canadian oil supply and requirements, with a focus on the need for oil export reduction. It followed a similar report published in October 1974, both of which showed declining producibility and shrinking surpluses.

FIRA review of uranium exploration

In October, Part II of the Foreign Investment Review Act, relating to review of new businesses, came into force. As a result, any company that was not exploring for uranium prior to October 1975 was henceforth to be reviewed by the Federal Investment Review Agency (FIRA) to determine whether or not any proposed exploration programs by foreign companies would be of significant benefit to Canada.

Heavy water capacity

A survey of heavy water production capacity in Canada in October indicated that Ontario Hydro and Atomic Energy of Canada Ltd. had enough capacity in operation and coming on stream to supply five new nuclear plants every year. The Bruce, Ontario and Port Hawkesbury, N.S. plants were operating and five other plants were under construction which, if completed, would raise Canadian production to more than 3 300 metric tons of heavy water a year. Of the five proposed plants, three more were scheduled for the Bruce site, to be in production by 1980. The Glace Bay, N.S. plant, after 10 years in construction, was expected to reach the production stage in 1976, and AECL was building a plant at La Prade, Quebec. Of the three scheduled Bruce site plants, Bruce B went into production at 800 tons of heavy water per year in 1979, Bruce C was cancelled, and Bruce D was started but later mothballed.

Northern gas pipeline hearings

National Energy Board hearings on applications of Canadian Arctic Gas Pipeline Ltd. and of Foothills Pipelines Ltd. to construct northern gas pipelines commenced in October.

Natural gas
pricing and
flowback
agreement
announced

On October 20 the governments of Canada and Alberta announced an agreement on the pricing of natural gas. The price of gas in Canada was to be determined by the wholesale price at Toronto. The wholesale prices at locations between the Alberta border and Toronto would be a function of pipeline transportation costs: the Toronto city gas price, less the Alberta-Toronto transport cost plus the cost of transportation to a given location. The price of \$1.25 at Toronto, fixed until June 30, 1976, was 85 percent of the crude oil equivalent price. The objective was to gradually move towards the crude oil equivalent rate. Also under the agreement, the Alberta government was to receive the additional revenues from the higher export prices and distribute them to Alberta producers including those serving only the Alberta market.

Anti-Inflation
Program,
Oct. 1975 -
Dec. 1978

On October 14, the Minister of Finance tabled a policy statement in the House of Commons on a program of national action concerning inflation. The federal government had concluded that it had become essential to undertake a concerted national effort to bring inflation under control. The program set in motion included fiscal and monetary policies, government expenditure policies, structural policies, and a prices and income policy which established guidelines for determining prices and incomes of groups together with machinery for administering these guidelines and ensuring compliance (see note of December 1978 on review of the AIP).

Toronto gas
price -
\$1.25Mcf

The Toronto city-gas price of \$1.25 per Mcf for natural gas became effective on November 1 as a result of the June budget and the federal Alberta agreement of October, being 85 percent of the oil price equivalent.

Canada-Alta.
Gas Pricing
Agreement

Prior to November 1975, the price for natural gas in interprovincial trade was determined by negotiation between producers and TransCanada PipeLines (TCPL). TCPL was the sole purchaser and carrier of gas into interprovincial markets east of Alberta. It sold its gas to provincial distributors at the city gate at negotiated prices. The transportation component of the price has been regulated by the National Energy Board. The passing of the Petroleum Administration Act in June 1975 provided for the federal prescription of city-gate prices and led to the negotiation of the first Canada-Alberta Gas Pricing Agreement effective November 1, 1975. From 1975 until 1985, the price of Alberta natural gas sold in interprovincial trade was administered under agreements between the governments of Canada and Alberta. During this period, natural gas prices were linked to crude oil prices.

Significant
federal-
provincial
adjustments to
1973-74 OPEC
price escalation

As part of the process at the federal and provincial levels in 1975 of adjusting tax regimes to new conditions of pricing and revenue requirements, the Government of Saskatchewan in November made plans to replace complex legislation and regulation with a single system related to productivity and to initiate a new royalty which would raise producers' returns. By the end of 1975 governments in Canada had made significant adjustments to the new oil price circumstances initiated by the four-fold international oil price increase of late 1973 - early 1974.

Oil exports to be phased out

In November, the Minister of Energy, Mines and Resources announced a reduction in crude oil exports to the United States following publication in September of a report on Canadian oil supply and requirements by the National Energy Board. The reduction called for a phasing-out of oil exports by 1981.

Conservation vital to adequate energy supply

An address given by the Minister of Energy, Mines and Resources in November emphasized the importance of energy conservation initiatives by noting that oil forecasts were indicating a short-fall in oil supply in areas west of the Ottawa Valley by 1981; and similarly for gas, spot shortages starting late in the 1970s with a gap between domestic gas demand and conventional supplies by 1984 - unless concerted action was taken to cut back on exports and greatly improve the efficiency of energy use in Canada through conservation measures.

Energy Ministers' Conference

An Energy Ministers' Conference was held on December 12 on energy supply and demand, conservation, pricing and energy research and development. This was the first of several such meetings of federal and provincial Energy Ministers held in the following three years. A forum was thereby provided to give continuing attention to the problems that had been generated by the OPEC initiatives of 1973-1974 when international oil prices increased four-fold in a short period of time.

The poor record in energy forecasting

International oil industry forecasts made in December predicted OPEC crude oil production at 37 million barrels a day for 1985 (actually OPEC production in 1985 was about one half that amount). Forecasts being made in the 1970s were not foreseeing the demand restraint impacts of conservation and world recession, nor the extent of new oil supply from the North Sea and other new sources. Neither had there been any forecasts in the early 1970s of the large 1973-74 oil price increases. The predictions of natural gas shortages in Canada, made in 1975, are further illustrative of the difficulties of energy economy forecasting.

Conference on International Energy Cooperation (CIEC)

Canada played a prominent role in the Conference on International Energy Cooperation (CIEC) held in Paris in December. CEIC, part of the "North-South dialogue", had two main objectives: western industrialized countries were looking for stable oil prices; Third World countries were seeking a bigger share of the world's resources. The oil producers of the Third World countries insisted on their unilateral right to supply and fix prices for oil. At the same time, industrialized countries opposed any concept of indexing the price of oil to the cost of other goods and services.

Anti-inflation program

Anti-inflation legislation was passed by Parliament in December, two months after the Prime Minister had announced the government's intention of imposing a system of controls on rising prices and incomes. In an address in November the Minister of Energy, Mines and Resources stated that two extremely important and critical subjects held the national spotlight: anti-inflation measures and the country's energy concerns, with the most urgent concern of Canadians being inflation. AIP pricing guidelines became a condition of oil import compensation eligibility.

Coal policy
re self-
sufficiency

During 1975 considerable attention had been given to a comprehensive Canadian policy on coal. In December, it was decided that further study should be made of the matter of granting to Canadian consumers first right of refusal of future supplies by producers, before the latter entered into export commitments. The possibility of protecting domestic requirements by making long-term export contracts subject to annual review was also to be assessed. In this context, the appropriateness of the Export and Import Permits Act was to be examined as a means of protecting domestic requirements. The attention being given to coal policy reflected the government's view that the orderly expansion of coal production and utilization represented an important element in the policies aimed at restoring Canada's self-sufficiency in all energy sources.

IEA Long-
Term Program
commitment

Canada participated extensively in the development of Long-Term International Energy Agency (IEA) programs in 1975. In December, it was decided that Canada would fully support the IEA program for Long-Term Cooperation on Energy with the exception that it would seek an exemption from the general commitment concerning access to energy production and national treatment for investment. At the same time, Canada accepted the commitment to "Guiding Principles" for project by project cooperation, on grounds that the provisions concerning the determination of the Host Government offered sufficient protection for Canadian interests. It also accepted the system of a Minimum Safeguard Price with the establishment of a price level for oil in the range of \$6 to \$8 a barrel.

New energy
conservation
initiatives

Based on extensive study, the federal government decided in December to set a conservation target of limiting the annual rate of growth of total primary energy consumption to no more than 3.5% between 1975 and 1985. To this end, the National Research Council was to coordinate the establishment of guideline criteria for the design and operation of energy efficient buildings by the end of 1976. Other measures to be pursued by government and industry included: district heating, greater fuel economies in new automobiles, the use of energy-efficient public transport, minimum energy efficient standards for furnaces, home and office appliances, etc., improved efficiency in air transport, increased attention to energy conservation in the administration of industrial assistance programs, energy audits of industrial operations with possible support in terms of matching grants or loans, increasing attention to home insulation, possible capital cost allowances in the purchase of energy conserving equipment, and increased mileage standards in automobile operation to no less than 27 miles per gallon by 1980 and 33 by 1985.

Panarctic
Oils Ltd.

Panarctic Oils Ltd., formed in 1967, commenced an active drilling program in the Arctic Islands in 1969 and continued each year with 3 to 5 drilling rigs. By December 1975, five gas fields had been discovered containing an estimated 12 trillion cubic feet, about one half the reserves required to support a pipeline from the Arctic Islands to southern markets. The largest of these fields, Hecla and Drake Point, were drilled offshore from Melville Island using an ice platform technique.

Oil export
reduction

Based on the NEB report released in September, which pointed to the need for further oil export reduction, the target set in December for the first half of 1976 was 510,000 b/d, and for the second half, 385,000 b/d, for an average in 1976 of 460,000 b/d. The plan in 1974 had been for a reduction to 540,000 b/d in 1976. The intention in 1975 was to phase out oil exports by the early 1980s to protect future Canadian requirements.

Energy outlook
at end of 1975

The energy outlook at the end of December was that, even with an energy price structure substantially higher than that prevailing in Canada at the time, Canadian dependence on imported oil would continue to increase at least until the mid-1980s with a balance of trade deficit for oil as high as \$4.5 billion in 1980. It was further indicated that a natural gas shortage could persist until the availability of frontier gas in southern markets was established, necessitating some reduction in committed exports to the U.S., and thereby lessening the degree to which natural gas exports could be expected to offset the balance-of-payments impacts of persistent oil deficits. The conclusion reached was that strong policy responses directed at increasing energy supplies and reducing energy demands were needed along with policies directed towards the substitution of domestic energy resources for imported oil. Accordingly, the focus was on frontier oil and gas supplies and northern pipelines, conservation, energy investment, and pricing policies, and on development of the Athabasca oil sands with some predictions of 10 to 15 plants by 1990 producing a total of one million barrels a day from this resource.

THE YEAR 1976**Energy R&D
priorities and
new funding**

In January a decision was taken to allocate new federal funding on energy R&D to six major energy areas directed to: conserve energy, maintain an adequate supply of liquid fuels, use coal as a substitute for liquid fuels, use nuclear power, develop renewable sources of energy, and to promote transportation and transmission R&D. Activities concerned with R&D were to be pursued simultaneously in these six areas but where priorities were modified by fiscal restraint, the order of priority would rate energy conservation first followed in order by the other 5 categories but with transportation and transmission R&D related to the appropriate commodity priority ratings. For 1976/77, there was to be additional funding of \$9.7 million and 64 person-years made available for the increased energy R&D programs. The increased funding, announced in March, increased the total expenditures on energy R&D to \$123 million.

**Petro-Canada
in operation**

Petro-Canada commenced operations early in January, the Petro-Canada Act having been proclaimed July 30, 1975.

**Oil and gas
export cut-back
predicted**

In addressing a U.S. audience in January, the Minister of Energy, Mines and Resources predicted that by the early 1980s Canada would have insufficient oil and gas to meet its domestic needs and for that reason it was having to curtail exports of oil, and a cut-back in natural gas was also a possibility. New supply from the frontier regions was the main hope for the 1980s and beyond; although these new oil and gas sources would be costly to develop.

**Canada commits
to IEA Long Term
Program**

On January 30, Canada agreed to adopt chapters I to IV of the Long Term Program of the International Energy Agency (IEA). The IEA had been established the previous year and Canada became a member of this organization which had the overall objective of taking measures to protect its members from the full impact of OPEC oil price increases and possible oil supply disruption. The Long Term Program, (LTP) complemented the other IEA activities: the emergency sharing scheme; the information system on the international oil market; and cooperative relations with oil-producing and other consuming countries. The LTP provided four main cooperative elements, of which Canada accepted three: conservation; accelerated development of alternative sources of energy; and energy R&D. It did not accept the fourth element, under which IEA Member Countries would endeavour to provide to nationals of other IEA countries treatment no less favourable than that afforded to their own nationals with regard to energy investments, the purchase and sale of energy, and the enforcement of rules of competition. Those commitments could not be accepted for constitutional, legislative and policy reasons.

**Energy strategy
statement**

In February, preparations were being made to finalize a national energy strategy, to be implemented within economic and fiscal policies and with as much provincial acceptance as possible. The statement was to focus on federal energy policies and programs as they had evolved over the previous two years; on Canadian energy prospects and problems to 1990; and on the elaboration of a positive, credible and broadly acceptable national energy strategy. The goal of energy self-reliance was to be defined but not in such a way as to imply any commitment by the government to provide guaranteed prices for the oil and gas throughput of northern pipelines, in order to ensure their economic viability, nor to imply any other commitment by the Canadian government to the construction of such pipelines, nor to imply any other commitment to the development of non-competitive domestic energy sources.

**Radioactivity
cleanup**

On February 19, the Minister of Energy, Mines and Resources announced in the House of Commons the formation of a federal-provincial task force to expedite the cleanup of radioactive contaminants in the Port Hope area of Ontario and to assist the Atomic Energy Control Board in assessing the significance of radioactivity in other locations in Canada. A total of 109 locations in 25 areas were identified as having known or suspected radioactivity.

**New energy
conservation
measures**

On February 26, the Minister of Energy, Mines and Resources announced a number of new energy conservation programs. A package of regulations, guidelines and incentives constituted the first major federal measures to enforce conservation. These measures included mileage standards for new cars (to provide for an average for all Canadian cars by 1985 of 28 miles per gallon); new building codes; financial encouragement, through revisions of CMHC loan and grant programs, for home insulation; minimum energy efficiency standards to be applied to furnaces and home appliances; industrial assistance programs to emphasize conservation; and reduction of energy consumption in federal facilities ("save 10" program).

**Energy Supplies
Allocation Board
(ESAB)**

In March, it was decided that, in view of the expiration of the Energy Supplies Emergency Act on June 30, 1976, the Energy Supplies Allocation Board would continue to administer the oil import compensation program, pursuant to the Petroleum Administration Act, beyond that date and other programs which might be delegated by the Minister of EMR. It was also decided to revoke departmental status of ESAB under the Financial Administration Act and to appoint public servants to the Board.

**IPL extension
to Montreal**

In March a decision was taken to ensure that Montreal refiners would be given access to Western Canada crude oil at the same delivered cost as Toronto refiners. Interprovincial Pipe Lines Limited was to be compensated for the differences between its revenue from the extension and the fixed and operating costs through the Deficiency Agreement signed in February 1975 between the federal government and IPL. Following this interim measure, oil

prices would be adjusted through the Import Compensation Program to the extent that was needed to make it attractive for Montreal refiners to ship via IPL without subsidy and without the government incurring further deficiency payments. The Minister of EMR was to take such steps as were necessary to ensure that Montreal refiners provided a market for Western Canada crude, building up to 250,000 barrels a day by the fourth quarter of 1976. The Montreal Crude Use Program, initiated when the pipeline began operations in June, required refinery participation as a condition of import compensation.

Energy R&D increases

Following the decision in January to increase energy R&D funding by \$9.7 million in 1976-77, details were announced in March. Of the total increase, \$1.8 million was for conservation; \$1.5 million for oil sands and heavy oils; \$2.5 million for coal gasification and related coal research; \$1.1 million for nuclear energy; \$1.7 million for energy transportation, including electrical transmission; and \$1 million for renewable energy R&D. Notwithstanding these increases, nuclear energy R&D was still accounting for about 70% of total energy R&D funding of \$123 million.

Northern pipeline studies

By the end of the 1975-76 fiscal year, in March, some 400 reports based on work carried out under programs in the Mackenzie Valley and northern Yukon relative to proposed pipelines, had been published. While a large proportion of these reports had been published under the authority and \$15 million budget of the Environmental-Social Committee of the Task Force on Northern Oil Development, established in December 1968, many other reports and papers were published by the participating departments and in the proceedings of conferences and seminars or in professional journals. In addition, some studies were conducted in 1975-76 by the Environmental-Social Committee in the Eastern Arctic, north of Spence Bay, relative to the proposed eastern Arctic pipeline of the Polar Gas Project, but further work was withheld pending a decision on the routing east or west of Hudson Bay. The studies and reports completed under auspices of the federal government in the first half of the 1970s in preparation for pipeline proposal decisions, and the extensive feasibility work conducted by companies in support of their pipeline proposals, constitute a large body of knowledge concerning, in particular, the Mackenzie River Valley and northern Yukon regions.

Loan on CANDU for Argentina

In April approval was given for a loan of \$25 million, under the Export Development Act, in support of the renegotiated AECL contract to supply a 600 MWe CANDU nuclear steam supply system to Argentina. This was in addition to a previous loan of \$129.45 million. The interest rate on the \$25 million loan was to be 9 1/2%, repayable semi-annually over 15 years. Earlier in the year, a decision had been taken to renegotiate the commercial terms of the contract to supply a CANDU reactor. The reactor was placed in service at Cordoba in 1983.

Northern gas pipeline hearings

The National Energy Board began its northern natural gas pipeline hearings on April 12. Three proposals were being considered. Canadian Arctic Gas Pipeline Ltd. had proposed a pipeline from Prudhoe Bay, Alaska, east to the Mackenzie Delta then south along the Mackenzie River Valley to Canadian and U.S. markets. The Foothills Pipe Lines

Ltd. consortium had proposed an all-Canadian "Maple Leaf Line" from the Delta to southern markets. Foothills Pipe Lines (Yukon) proposed the Alaska Highway route.

**Thunder Bay
coal terminal**

Work began in April on a new \$45 million coal loading terminal at Thunder Bay, Ontario, designed to provide, by 1980, a trans-shipment capacity of about 3.25 million tonnes of coal annually for Ontario Hydro with most of the coal to come from Western Canada. Ontario Hydro planned to spend \$26 million on new facilities to blend coal from the U.S. and Western Canada.

**"An Energy
Strategy for
Canada:
Policies for
Self-Reliance"**

On April 27, the Minister of EMR tabled in the House of Commons a document entitled "An Energy Strategy for Canada: Policies for Self-Reliance". This report outlined nine policy elements and five major energy-related targets to deal with energy problems. The strategy was designed to minimize Canada's dependence on imported energy sources while ensuring that the country would become as self-reliant as possible on secure, domestic sources of energy. The nine policy elements were defined in the following terms: appropriate energy pricing; energy conservation; increased exploration and development; increased resource information; substituting domestic energy for expensive imported energy; new or improved transportation and transmission systems; emergency preparedness; increased R&D; and greater Canadian content and participation. Self-reliance was defined as reducing the vulnerability of Canadians to arbitrary changes in price or supply of imported energy by using domestic resources to the greatest extent possible and protecting against interruptions in the supply of energy that must be imported, but such a strategy did not imply self-sufficiency at any price. Energy self-reliance within 10 years was the objective of this new national energy strategy.

**Newfoundland
offshore Court
Reference**

In April an agreement was reached between the federal and Newfoundland governments to prepare a joint Reference to the Supreme Court of Canada to settle the question of jurisdiction and property rights in relation to offshore mineral rights, off the coast of Newfoundland and Labrador.

**Oil and gas
price increases,
effective
July 1, 1976 and
January 1, 1977**

On May 18, the Minister of EMR announced in the House of Commons certain major decisions concerning crude oil and natural gas prices. The decisions reached had been preceded by federal-provincial conferences on energy on December 12, 1975 and March 5, 1976, a meeting of First Ministers on May 6, and numerous bilateral contacts at ministerial and First Ministers levels. The single price of crude oil had, since the previous July, been held at \$8 per barrel, \$4.50 below the international price, and was due to be changed on July 1. Accordingly, the government had decided to increase the price by \$1.05 a barrel effective July 1 and by a further 70 cents to \$9.75 on January 1, 1977. Increases in petroleum product prices would be delayed 45 days, but subsequent to January 1, 1977, the price freeze for products was generally 60 days on all price adjustments. The price of natural gas was

scheduled to rise by 15.5 cents to \$1.40 per million Btus, at the Toronto city gate on July 1, and by a further 10 cents on January 1, 1977, thereby maintaining an 85% commodity price relationship with crude oil. The federal government's price decisions represented a majority view among the provinces, but not unanimous support as some provinces resisted any increase.

Proposed P&NG Act

In May, the Minister of EMR and the Minister of Indian Affairs and Northern Development announced the elements of a Petroleum and Natural Gas Act which was scheduled to be placed before Parliament later in the year. The new legislation was designed to promote the early assessment of Canada's frontier oil and gas resources through incentives to explore, and disincentives to allow land to remain idle, and by granting the necessary authority to require a certain pace in exploration activity as a condition of holding exploration permits. This was in accordance with the goal of self-reliance and the elements of the national energy strategy announced in April. Improved efficiency in the collection of a fair share of the economic rent from discoveries would be accommodated through the introduction of a new Progressive Incremental Royalty (PIR) system in addition to the 10% basic royalty on production. The PIR was to consist of a 40% tax on profits over and above a 25% rate of return on investment in a field. The unitary development concept was implemented and the "no front end load" principle was retained. The new Act would authorize regulations that impacted on existing contractual obligations. One of the regulations would make provision for an option for Petro-Canada to acquire a 25% working interest in any existing grant for which a special renewal permit was granted or in any provisional lease issued before a discovery had been made.

Alberta Heritage Fund

In May, the Alberta government established the Alberta Heritage Savings Trust Fund to build up a pool of capital from provincial oil and gas revenues in support of the government's commitment to provide for the diversification of the Alberta economy in the future. The Fund was also to be used to enhance the quality of life of Albertans, and to ensure an alternative revenue source for the government in the future if needed. About 30 per cent of the non-renewable resource revenues accruing to the government were committed to the Fund, with the remainder going into general revenue funds. The Fund increased from \$2.2 billion in 1977 to \$13.1 billion in 1982. While the federal government in 1978 supported the concept of the Fund, its size by the early 1980s, with projections for the early 1990s of some \$150 billion, appeared to demonstrate an obstruction to the distribution of national wealth, and a major transfer of revenue collecting authority away from the federal government while deficits of the national government were increasing. In 1982-83, the share of provincial revenues going into the Fund was reduced to 15 per cent, and some direct assistance was given to Alberta residents who were in financial difficulties because of the recession. The rate of growth in the Fund declined considerably in the 1980s as oil revenues declined with falling prices.

Increase in gas
export price -
impact on
exploration

On June 10, the Minister of EMR announced that the international border price of natural gas exports would be increased in two stages to \$1.94 per thousand cubic feet from \$1.60, the latter price having become effective on November 1, 1975. In setting an average border price, the government was responding to the wishes of the U.S. government. The price of \$1.94, effective January 1, 1977, was to be reached through an intermediate increase to \$1.80 on September 10, 1976. The government's export price decision followed from the National Energy Board's third "Report in the Matter of the Pricing of Natural Gas Being Exported under Existing Licences", issued in April 1976, although the Board had made its price recommendations in an export price range of \$1.60 & \$2.10. In 1975 and 1976 there was a marked increase in gas exploration as a result, in part, of the domestic and export pricing policy being implemented.

Management of
nuclear waste

In June, the Department of EMR and Atomic Energy of Canada Limited jointly embarked on a long-term program for the storage of spent reactor fuel and other radioactive wastes. The program was designed to assess the method of emplacing radioactive waste in rock formations at great depth.

Uranium resource
estimates
increased by
URAG

In June, the Minister of EMR released revised uranium resource estimates contained in the report "1975 Assessment of Canada's Uranium Supply and Demand". Uranium recoverable at two prices, up to \$20 per pound and up to \$40 per pound of uranium oxide, was included in the assessment of measured, indicated and inferred resources totalling 562,000 tons, an increase of 7.8% from the 1974 estimate. This was the second report of the Uranium Resources Appraisal Group (URAG).

IPL extended
to Montreal

The extension of the Interprovincial Pipeline system from Toronto to Montreal was completed in June and oil deliveries commenced. By mid-November, a delivery rate of 250,000 barrels a day had been attained. Decision to extend the line to Montreal had been announced in December 1973 in view of concern about the security of foreign oil supplies.

B.C. offshore
Court of Appeal
judgment

Following a reference in October 1974 by the B.C. government to that province's Court of Appeal on the question of the status of the submerged land lying between Vancouver Island and the mainland, the Court of Appeal in June found that the lands are the property of the province. The federal government subsequently launched an appeal against this opinion.

Glace Bay
heavy water
plant opened

In June, the Glace Bay heavy water plant came into production after ten years of design, construction, and labour problems. Because of a lack of markets, AECL began decommissioning the Glace Bay and Port Hawkesbury plants in Nova Scotia in May 1985.

Petro-Canada
preferential
treatment -
back-in option

In an address on June 17 to the Independent Petroleum Association of Canada, the Minister of EMR spelled out in further detail the preferential treatment proposed for Petro-Canada in the policy statement made in May on the Petroleum and Natural Gas Act. With regard to the

acquisition of oil and gas rights in the frontier regions, under the new Regulations, Petro-Canada could select up to 25% of any lands surrendered back to the Crown. A further preferential process would involve an option for the acquisition of a 25% working interest without payback of previous exploratory expenditures in respect of acreage covered by existing exploration rights, but only in the case of a specialized Permit or in the case of a Provisional Lease, and then only when the holder of the rights was still in the exploration phase. The 25% working interest could not be obtained in the case of a delineated field or any discovery declared a "commercial" discovery.

AECB role and Ham Commission

In June, the report of the Ontario Royal Commission on the Health and Safety of Workers in Mines (Ham Commission) was issued. The Commissioner had been appointed in September 1974 to investigate matters related to mine workers' health and safety following public expressions of concern regarding the effectiveness of mine safety programs, particularly in the uranium mines of Ontario. The Commission findings included data pointing to excess deaths due to lung cancer in uranium miners in the period 1955-1974. The report pointed out strongly that the jurisdictional responsibilities, as between the federal and provincial governments, in matters of safety of uranium mines, were not clear and must be resolved. The Commissioner recommended that "the Atomic Energy Control Board issue explicit regulations establishing the maximum permissible annual exposures to ionizing radiation for workers in uranium and thorium mines and mills". The Board had issued Regulations in 1974 specifying the maximum annual dose as 15 rems. Following the Ham Commission report and further assessments, the Board issued even more stringent restrictions regarding maximum exposure, in its 1978 Regulations. This issue of uranium miners' health, together with the explosion by India of a nuclear device in 1974 and the emergence of contamination problems at Port Hope in 1975, raised nuclear safety matters to particular prominence in the mid-1970s and added urgency to the need for a larger AECB staff. It also led to proposals for more definite legislation to replace the Atomic Energy Control Act of 1946. (See also notes for November 1977 and October 1978.)

Offshore negotiations

During 1976, negotiations relative to offshore mineral rights continued and in July it was decided, as part of the federal government's negotiating position, to offer the Maritime provinces 75% of the net offshore mineral resource revenues accruing from areas offshore from those provinces, and to indicate a willingness to come to an agreement with the Maritime provinces, with or without the concurrence of Newfoundland and Quebec, on the limits of the offshore areas to be covered by the federal-provincial Agreement in respect of the Maritime provinces. Such an agreement might be based on the inter-provincial boundary lines suggested at a previous Federal-Provincial Conference. Before the end of the year, negotiations were concluded for a memorandum of understanding on the administration of activities relating to mineral resources offshore and the division of revenues. Shoreward of mineral resource

administration lines, the adjacent province would receive 100% of the revenues, and 75% seaward of the lines. The memorandum opened the way for the conclusion of a formal agreement.

ESAB
responsibilities
transferred

In July, responsibilities of the Energy Supplies Allocation Board were transferred to the Department of Energy, Mines and Resources (see March note).

Canada reaffirms
its claim on the
Arctic
Archipelago

In relation to the United Nations Conference on the Law of the Sea, Canada, in July decided to reaffirm its historic claim that the waters within the Arctic Archipelago are internal Canadian waters. No commitment was to be made that would weaken Canada's claim to the Arctic Archipelagic waters, including the Northwest Passage, and other special bodies of water. It was Canada's intention at an appropriate time to draw straight baseline, in accordance with accepted principles of international law, around the perimeter of the Arctic Archipelago, thereby delimiting the waters regarded by Canada as internal. In September 1985, the Canadian government declared those waters to be inland waters of Canada but, by 1987, this claim had not been tested in international law nor had it been formally recognized by any country.

Uranium
exploration
accelerated -
Uranium
Reconnaissance
Program

In August, the federal government entered into shared-cost agreements with New Brunswick, Ontario, Saskatchewan and British Columbia under the Federal-Provincial Uranium Reconnaissance Program to accelerate exploration for uranium. The agreements raised to \$5.6 million the amount committed to the program since it began in 1975, with half of the amount being federally-funded. The program was designed to provide industry with data on areas most likely to contain new uranium deposits, and to provide governments with information to help in assessing total Canadian uranium resources.

Petro-Canada
acquisition
of Atlantic
Richfield

Effective August 1, Petro-Canada acquired the Canadian assets of Atlantic Richfield Canada Ltd. and these assets were incorporated into the Corporation as its subsidiary, Petro-Canada Exploration Inc. The cost of this acquisition in 1976 was \$342,440,000 (see December 1980 note).

National coal
policy proposal

During September, the five coal-producing provinces pledged their support to the federal government in the development of a new national coal policy. British Columbia, Alberta, Saskatchewan, Nova Scotia and New Brunswick expressed interest in the following elements of a national coal policy: a national inventory of coal resources; market projections of coal demand in domestic and export markets; studies of the impact of transportation costs on coal marketing; coal R&D; and an export policy providing Canada with the right of first refusal to ensure adequate supplies for domestic requirements. A national coal policy would be directed towards determining the role of coal in meeting Canada's total energy budget, and it would also help governments and industry develop plans to meet future coal requirements.

Nuclear power
expansion
forecast -
Canada

A public statement by the President of Atomic Energy of Canada Ltd (AECL) in September suggested that Canada's nuclear development program would likely require the installation of three nuclear power units in Ontario each year in the 1980s, a similar rate of expansion in Quebec in the 1990s, one unit every other year after 1985 in the Maritimes, and two units a year in Western Canada in the 1990s. This would raise the 1976 requirement of 500 tons of refined uranium fuel to about 5000 tons by 1990.

Security of
uranium
information -
international
marketing
arrangement

In September it was decided to take the necessary action to deem confidential any information possessed by a uranium company relating to its special activities during the period 1972-75 and to prevent its disclosure unless authorized by the Minister of EMR. This decision of general application applied specifically to Gulf Minerals (Canada) in relation to its parent Gulf Minerals U.S. The federal government approved a Regulation under the Atomic Energy Control Act to effect these decisions. The action was taken in the light of demand for such information by U.S. subpoenas which, while served upon officers of U.S. companies, called upon the presentation of information in the possession of subsidiary or affiliate companies "wherever located." As noted in a statement issued by the Minister of EMR on September 22, Canada had tried in the early 1970s to elicit consumer nation support for the uranium industry in a situation of oversupply and low prices compounded by U.S. policies which closed the U.S. market to foreign uranium, and moved the U.S. government stockpile into the international market through conditions imposed on foreign users of U.S. uranium enrichment facilities. Lacking support from consuming nations, and in view of the projected demand for uranium, Canada along with uranium producing nations developed informal marketing arrangements. In accordance with those arrangements, the Atomic Energy Control Board rejected any export of uranium at prices below those called for by the marketing arrangements. The minimum prices adopted were almost without exception below those in the protected U.S. market and ranged from \$5.40 to \$8.20 per pound of U_3O_8 for delivery in 1972 and 1974, respectively. After the 1973-74 oil crisis, uranium prices rose well above any agreed minimum price structure and, as the marketing arrangements had been overtaken by market forces, Canada withdrew all minimum price directives in early 1975. The U.S. vigorously pursued its inquiry in the post-1975 period because, among other reasons, a U.S. company had been caught in a deal of its own making whereby it had undertaken to supply uranium at early-1970s prices whereas uranium was not available at those prices when the time came for delivery (see October 1977 note).

Foothills (Yukon)
gas pipeline
application

In September, Foothills (Yukon) Pipe Lines Ltd. applied to the NEB to build a gas pipeline, 42-inch diameter, from the Alaska/Yukon border through the Yukon to connect with Westcoast Transmission Company facilities in B.C. and Alberta Gas Trunk Line Ltd. in Alberta to transport Prudhoe Bay gas south to the U.S. border. While maintaining its Maple Leaf application (see March 1975 note), it ceased work on that alternative.

Canada/Saskatchewan heavy oil agreement

On October 4, the "Canada/Saskatchewan Cooperative Agreement for a Program of Enhanced Recovery of Heavy Oil in Saskatchewan" was signed. This was a \$16.2 million shared-cost program to develop new methods of recovering heavy oils from Lloydminster and similar fields in the province. Under the Agreement, proposals were to be sought from industry for testing new methods of oil extraction. The Agreement was administered by a federal-provincial committee. A company would carry out work, which would subsequently be evaluated by the two governments, and any new technology would be made available to other producers.

Speech from the Throne - northern exploration, renewable energy

The Speech from the Throne on October 12, marking the opening of the Second Session of the Thirtieth Parliament, included the following references to energy:

"There is a growing awareness among Canadians of the need for more careful conservation of vital energy resources such as petroleum and natural gas. The Government will place further emphasis on research and development of renewable energy sources and on means of improving the efficiency with which energy is used in Canada, particularly the thermal efficiency of residential and commercial buildings. To ensure responsible development of our indigenous resources, the Government intends to introduce measures to regulate exploration and development on federal lands".

"The Way Ahead: A Framework for Discussion" re energy policy directions

In October, the federal government released a working paper entitled "The Way Ahead: A Framework for Discussion" which outlined the economic and social directions the government planned to take after the program of direct controls of incomes and prices, instituted in October 1975, was discontinued in 1978. This policy paper, in commenting on the importance of economic growth in future planning, noted that "the investment requirements foreseen for energy in the 1980s may be only one component of a severely stretched economy. Among the policy directions offering the potential to ease the adjustment problems of the 1980s and to assure that the growth process results in an improved quality of life would be a greater emphasis on energy conservation programs which are a least-cost, least-risk direction for Canadian energy policies and a critical contributor to the reduction of inflationary pressures. In this same regard, the capital intensity and large scale of existing energy supply alternatives strongly suggest that urgent attention be given to less capital intensive, more decentralized, renewable energy alternatives."

Alberta/Canada energy research fund agreement

In a letter of October 28 to the Premier of Alberta, the Prime Minister outlined proposals for the disposition of money available under the "special fund" which resulted from the March 1974 oil pricing agreement. In his reply of November 18, the Premier accepted the federal proposals and this exchange of letters became the basis for the disposition of the \$145 million in the fund, with \$96 million being allocated to energy and energy related research projected in Alberta and \$48 million for transportation projects in that province. The fund had accumulated on the basis of 25 cents per barrel of Alberta

crude oil produced between April 1, 1974 and June 30, 1975. It was agreed that the funds to be allocated to energy projects would be administered by an Alberta-federal committee of senior officials. Transfer of federal funds commenced in fiscal 1976-77 and amounted to \$4 million. Subsequently, \$10 million was transferred in each of 1977-78 and 1978-79, and \$24 million for each of the fiscal years 1979-80, 1980-81 and 1981-82 for a total of \$96 million. The special fund had accumulated as a result of the March 1974 oil pricing agreement whereby Alberta accepted the federal oil price maintenance proposal to hold the field price of crude oil at \$6.50 per barrel through to June 30, 1975 in exchange for a federal undertaking to step up federal spending within Alberta by an amount equivalent to 25 cents per barrel of crude oil produced in the province in that period. It was subsequently determined that the accumulated amount in the fund was about \$145 million. The moneys were to be allocated in the proportion of one-third to transportation and two-thirds to energy-related projects (see December note).

Electricity export policy

In November, the existing policy of permitting exports of electricity, subject to adequate price levels and priority for Canada, was confirmed. The principal elements applying in this policy were defined in the following terms: the price of electricity exports to be no less than comparable sales to Canadian customers and at a level compatible with the cost of production in the U.S., with Canadian customers having first right of refusal; where an export market exists for electricity, this might establish an opportunity price which a neighbouring province should expect to pay if it exercised a prior right to the energy; as long as the short and longer term national interest was protected, there would be no discouragement to building facilities that are initially intended primarily for export markets; in the administration of environmental standards and other general aspects of public interest, the approval of competent provincial authorities would normally suffice; electricity produced from oil and gas and sold on export markets would usually be priced consistent with the export or international price level of those fuels, including adjustments for export taxes on import compensation; and where the price to be charged for fuel under an export licence exceeds the price normally paid for fuel supplies by the utility, this difference to be recovered by Canada through drafting amendments to regulations under the Petroleum Administration Act or through other appropriate means. Subject to these safeguards, encouragement was to be given to interconnections between Canadian and U.S. electric utilities where mutual benefits could be obtained, particularly if the interconnections formed part of a regional power pool.

Berger northern pipeline inquiry

In November, the Berger Commission inquiry into a pipeline through the Mackenzie Valley completed its 20 months of hearings on the environmental and social impacts of pipeline proposals. The report, expected in the spring of 1977, was to recommend what conditions should be placed on the granting of right-of-way for any pipeline

construction. EMR was coordinating an interdepartmental assessment of options relative to northern gas pipelines so that the government would be in a position to decide on an appropriate course of action once the recommendations from the Berger Commission, and from hearings of the National Energy Board on northern pipeline applications, became available.

Tidal power
report

A preliminary report on a \$3 million tidal power study, funded jointly by the governments of Canada, Nova Scotia and New Brunswick, was released in November. It concluded that the Bay of Fundy tides could provide economically feasible power under the right set of circumstances. However, while the technology was available, the requisite price and other circumstances would not likely occur within the 1980s.

LaPrade
heavy water
plant

In December, the federal government decided, on the basis of anticipated future sales of CANDU reactors, to consider postponing the construction of LaPrade heavy water plant in Quebec. In consulting with Quebec on this matter, the federal government planned to ascertain the province's interest in making a firm commitment to a CANDU program or, alternately, to otherwise share the risk of heavy water inventory accumulation through direct participation in La Prade.

Uranium
export prices

In December, it was decided that new uranium sales abroad should be made at prevailing world prices with provision for an escalating floor price and annual negotiation of price. Canadian producers would be encouraged to renegotiate existing contracts where selling prices were too low to provide a reasonable return.

Export of nuclear
reactors and
related nuclear
products -
greater
safeguards

In December, after considerable study, a decision was reached to proceed with a program directed to the export of nuclear reactors, related nuclear products and technology but subject to increased safeguards procedures. This was to include ratification of the Non-Proliferation Treaty by a potential importer or a binding commitment to the non-proliferation of nuclear weapons and acceptance of the application of International Atomic Energy Agency safeguards to all nuclear activities. Canada would seek the broadening and strengthening of IAEA safeguards, the widest possible adherence to the Non-Proliferation Treaty and agreement among major nuclear suppliers to place even more stringent conditions on their nuclear sales, particularly on the transfer of the most sensitive parts of the nuclear fuel cycle. By the end of 1976, South Korea and Finland had met the safeguards. There was an interim arrangement with the U.S., some upgrading was required by Argentina and Spain, and negotiations were continuing with Japan and the European Economic Community. Nuclear program aid to India and Pakistan had been dropped.

Syncrude oil
sands plant

By the end of December, construction of the Syncrude Canada Ltd. oil sands project near Fort McMurray was 60% completed and expected final cost when completed in early 1978 was \$2 billion for the 125,000 barrel a day plant. A final agreement among the partners had been signed in

April: Imperial Oil (31.25%); Canada Cities Service (22%); Gulf (16.75%); Petro-Canada (15%); Alberta (10%); and Ontario (5%). This was based on the agreement reached in February 1975 to establish an industry-government partnership to provide funds needed to complete the project.

**Alberta/Canada
\$96 million
energy research
fund**

As announced in December, a sum of \$96 million was made available by the federal government under terms of the Alberta/Canada Energy Resources Research Fund. A 'special fund' of \$145 million resulted from a federal government commitment made in March 1974 in relation to a crude oil price policy for the period April 1, 1974 to July 1, 1975, with Alberta having agreed to a \$6.50 a barrel price ceiling for that period. The fund was to be used for energy research projects in Alberta, with the choice and timing of those projects to be made by the Alberta/Canada Energy Resources Research Committee. In addition to the allotment of \$96 million for energy research projects, \$48 million was allocated to transportation projects in Alberta as a result of the March 1974 agreement (see October note).

**Columbia River
Treaty Mica
power plant
completed**

In December, the Columbia River Treaty Mica Dam power station was completed and commenced its first year of operation. The history of the Columbia River Treaty dates from 1944 when the International Joint Commission undertook investigations to determine whether further development of the water resources of the Columbia River basin would be practical and advantageous to both Canada and the United States. Subsequent studies and negotiations eventually led to ratification of the Treaty on September 16, 1964. Payments for flood control totalling \$64 million (US) were made by the United States to Canada as the Treaty storage dams (Duncan, Arrow and Mica) were completed in Canada. These Treaty dams combine to control great seasonal fluctuations of the Columbia River's flow, thereby reducing flood hazards and increasing the power potential in both countries. In payment for the downstream power benefits on the Columbia River as sold to a group of power entities in the U.S. called the Columbia Storage Power Exchange, for a period of 30 years, the Government of Canada received \$253,929,534 (US). This was made available to the B.C. Government which, under terms of an Agreement of July 9, 1963 with the Government of Canada, undertook to use these funds for the construction of the three large storage dams. Operational storage at the Duncan Dam was completed in July 1967; at the Arrow Dam (now Keenleyside) in July 1969; at the Mica Dam in March 1973; and at the Libby Dam on the Kootenai River, a tributary of the Columbia in the U.S., in April 1973. The Libby power generation plant became operational in August 1975 and the Mica power plant at the end of 1976. The Mica plant was designed to ultimately produce 2.6 million kilowatts of power, and other projects located downstream from Mica in Canada and on the Kootenai River in the U.S. would raise the total potential from the Columbia River Treaty to more than 6 million kilowatts. The Mica power plant is one of the world's largest underground powerhouses. The Mica Dam is the only one of the three Columbia River Treaty dams designed to generate power.

Canada-U.S.
energy
relations

Canada-U.S. relations, viewed in December in the perspective of developments in the early to mid-1970s, were seen to be strained as a result of the fact that both countries were being forced to adjust their overall energy policies to reflect the new realities of energy supply and demand. In Canada, there was a growing realization that the energy resource base was far from being infinite and there was, therefore, need to reassess resource management policies that would bring supply and demand into better balance over the longer term. With declining Canadian exports, U.S. customers were faced with the task of redeploying their distribution systems as a means of adjusting to a situation of declining supplies from Canada. From a net oil exporter in 1973, Canada was becoming an increasingly large net importer in the mid-1970s. Oil exploration programs were disappointing in western Canada and the prospects in the Arctic and off the east coast, while encouraging, were long-term. On November 24, 1974, the Canadian government had announced a phasing-out program for Canadian crude oil exports to the U.S. by the early 1980s in order to adjust to the declining supply situation in Western Canada. Since 1970 all applications for additional natural gas exports had been denied because reserves were insufficient to meet foreseeable Canadian requirements and existing export commitments, a position confirmed in an NEB report of April 1975. The U.S. position was that all shortages should be shared equally between the two countries. Within Canada, there was a rejection of the "continentalist" solution to North America's energy problem because it was felt that Canada faced a substantial challenge in developing sufficient supplies for its own needs until frontier sources could be brought into production.

THE YEAR 1977**Stronger nuclear safeguards**

In January, the federal government embargoed the export of Canadian nuclear materials and technology to all countries which had not entered into agreements on tighter regulations regarding nuclear safeguards. Shipments to a number of countries were affected, principally Japan, countries of the European Economic Community, Switzerland and the U.S.A. At the end of 1977, agreements were outstanding with Japan and Switzerland. An agreement was completed with Japan early in 1978.

Transit Pipeline Treaty

Canada and the U.S. held negotiation's in 1976 on a bilateral pipeline agreement which was signed on January 28, 1977 as the Transit Pipeline Treaty. It provides for non-interference and non-discrimination for transit pipelines carrying oil and natural gas destined for one country across the territory of the other. The agreement would not come into force as a treaty until ratification by both countries. The ad referendum text of the proposed agreement between Canada and the U.S. had been released in May 1976 in Canada and a decision was taken to authorize signature and ratification in parallel with U.S. action (see September 1977 notes on Northern Pipeline).

LaPrade heavy water plant

In February, consultation was underway among departments and agencies directly concerned with the options of completing the LaPrade heavy water plant on a schedule with a 1982 completion date, or "mothballing" the plant for several years until additional reactors requiring heavy water were committed, other than in Ontario. Decision was deferred until the end of 1977 (see December note).

Environmental Assessment Review Process

In February, steps were taken to strengthen the Environmental Assessment and Review Process (EARP), including provisions to ensure that federal departments and agencies provided information on their projects and arranged for public response early in the planning stage before vital decisions were taken that could be difficult to alter regardless of public opinion. There was also to be a sharing of costs between the government and proponents of projects, with proponents bearing costs that were clearly incremental to a department's normal budgeting expenditures. The federal government would bear the costs of baseline studies, the assessment procedure, verification and enforcement, and monitoring studies. Proponents would be responsible for costs of preparing environmental evaluation reports, any expertise unique to the government that was required to prepare those reports, and proponent inspection and reporting.

N.S. and P.E.I. conservation programs based on federal funding

The second component of a \$92 million program to encourage greater energy conservation was announced in February consisting of \$63 million in federal contributions to Nova Scotia. The province was to contribute an additional \$7 million. In December 1976, the

federal government made funds available to Prince Edward Island in the amount of \$12 million for conservation programs. The programs for both provinces emphasized home insulation projects, with also attention to conservation practices in the commercial and industrial sectors. Included in the Nova Scotia program was an amount of \$24.2 million for projects to reduce the use of imported oil for the generation of electricity.

The Bayda uranium
inquiry - Sask.
Cluff Lake

Further to previously announced plans to investigate the implications of expanding uranium mining in Saskatchewan, the provincial government in February appointed a 3-member board under the chairmanship of Mr. Justice Bayda to inquire into the implications of the Cluff Lake uranium development in northern Saskatchewan. The inquiry continued throughout 1977. The Ontario Environmental Assessment Board also held public hearings during the year to assess the environmental impact of the expansion of Elliot Lake uranium operations. The recommendations of these inquiries would have a considerable effect on the future of uranium development in Canada.

Maritime Energy
Corporation -
agreement in
principle

On February 8, the Minister of EMR and the Premiers of N.S., N.B., and P.E.I. announced their agreement in principle to the establishment of a Maritime Energy Corporation to be concerned with the means of achieving optimal expansion of electric generation and supply in the Maritime provinces with the object of maximizing the most favourable options of each of the participating utilities. The Corporation would undertake responsibilities relative to financing, construction and operation of regional power projects, negotiating of agreements with neighbouring power systems, coordination of the day-to-day operation of the entire combined system of generation and bulk transmission in the three Maritime provinces, provision of competent system planning staff, and engaging in R&D, energy conservation, and load management projects on behalf of the power utilities of the Maritime provinces.

Federal-
Maritime
offshore M.O.U.

In February, the three Maritime Provinces signed a Memorandum of Understanding (M.O.U.) with the federal government in the form of a statement of principles calling for negotiation of a formal agreement on a new regime for joint administration and management of mineral resources offshore the Maritime provinces. It envisaged an agreement incorporating the following features: lines of demarcation as between provinces, and as between federal and provincial jurisdictions; a Maritime Offshore Resources Board to issue offshore rights and ensure that spin-offs benefitted the Maritimes; a Resource Management Agency to carry out administration and management functions under direction of the Board; and revenue sharing - 75% to provinces seaward of federal-provincial demarcation lines, and 100% landward of these lines (Mineral Resources Administration Lines).

Foothills (Yukon)
amended
application for
Alaska Highway
route

In February, Foothills (Yukon) and associated Foothills companies amended their application in order to provide for a 48-inch express pipeline system to transport Alaska gas overland to the lower 48 states, without using existing Westcoast Transmission and Alberta Gas Trunk Line facilities (see note for September 1976). In March 1977, Foothills withdrew its earlier proposal.

Renewable Energy
Branch in EMR
and increased
R&D

On February 11, the Minister of EMR announced the establishment of a Renewable Energy Resources Branch in EMR and a \$4.4 million increase in federal energy R&D spending on renewable energy in a total energy R&D increase of \$10 million to a proposed \$137.8 million in 1977-78. The increased emphasis on renewable energy R&D was to be supported by the formation of the new Renewable Energy Resources Branch which was to direct its efforts to ensuring that these alternate forms of energy received full consideration when policy decisions were taken. The \$10 million increase in R&D funding also made provision for \$3.7 million in new research on energy conservation.

Nelson River
transmission
system

On March 1, the federal government announced that it would make long-term loans totalling \$193.2 million, repayable in 30 years, to Manitoba for the Nelson River Transmission system. This was a continuation of the program whereby Canada paid for and managed construction of most of the first phase of the Nelson River transmission system at a cost of \$244 million. Whereas the first phase, under terms of the Canada-Manitoba Nelson River Transmission Agreement of 1966, involved transmission of hydroelectric power from generating stations on the Nelson River to southern Manitoba, the program announced in March was directed to helping finance interconnecting regional transmission lines and associated facilities. The new loan was to be made in instalments according to the construction schedule and repayable over 30 years from the completion of each element of the facilities. Loan installments were to be payable over a period terminating in 1985 but in total were not to exceed the lesser of \$193.2 million or 50% of the capital cost of constructing and equipping the transmission facilities, excluding the installed cost of equipment related to the second bipole procured by Manitoba Hydro from offshore sources. The federal government had completed the original transmission lines over a 560-mile route and the related converter stations up to a normal capacity of 1000 MV, in the period 1967-1972 at a cost of \$244 million. The Nelson River transmission system was scheduled for completion in 1984, with the federal loans covering \$437 million of the total cost of \$725 million.

Annual
renegotiation of
uranium
contracts

In March, Canadian uranium producers were advised by the Minister of EMR that all uranium contracts not then approved by the Atomic Energy Control Board, and all future contracts, would be subject to annual renegotiation of price based on then existing world prices, and with regard to such factors as term and size of contract and any special financing arrangements.

Oil and natural
gas resources
studies

In March, the Department of EMR issued two reports on oil and gas resource appraisals: "Oil and Natural Gas Resources of Canada, 1976", and "Oil Sands and Heavy Oils: The Prospects". The first study presented estimates of recoverable reserves of crude oil and natural gas, and probability estimates of potential resources. The second study presented estimates of recoverable, upgraded oil in the Athabasca oil sands and heavy oil areas. The potential resource estimates were prepared by the Geological Survey of Canada.

Cape Breton Coal
problem -
1976/77 loss of
\$26 million

By the end of March, the results of the Cape Breton Development Corporation (DEVCO) financial year 1976-77 indicated a continuation of the long-term Cape Breton coal problem. The Coal Division of DEVCO required federal grants of \$26 million in 1976-77 to cover operating losses. DEVCO had been established as a federal Crown corporation at the end of 1966 to acquire the properties and leases of the failing Dominion Steel and Coal Company in order to phase down and/or phase out coal mining in Cape Breton and introduce alternative industries into the Sydney, N.S. area. As the introduction of viable alternative industries was not successful and inasmuch as coal marketing became more attractive in the early 1970s with the rising oil prices, the objectives of DEVCO changed. Two new mines were developed (Lingan and Prince), and one mine was rehabilitated (No. 26 Colliery). While production capacity by 1977 had been raised to 3.5 million tons per year, actual output was 2.5 million tons in 1977. The performance of the new mines had been disappointing and DEVCO continued to operate at a loss, requiring large federal grants to maintain its operations.

Energy Ministers'
Conferences

Three Energy Ministers' Conferences, chaired by the Minister of Energy, Mines and Resources and involving all provincial Ministers of Energy were held in 1977: April 6, May 11 and December 1. Previously, there had been Energy Ministers' Conferences on December 12, 1975 and March 5, 1976. While these meetings covered a broad range of energy policy topics, the central topic related to oil and gas prices, with each province setting out its position. At the April 6 meeting, the Quebec Energy Minister stated that Quebec was in agreement with the federal approach of gradually moving domestic prices towards world price levels but in terms of two requirements: Canadian prices not to exceed those of the U.S. in order to ensure the maintenance of the competitive capacity of Quebec enterprises; and to ensure the protection of Quebec consumers against too rapid a price increase.

Federal electrical
energy programs
for the Atlantic
provinces and
preparation
for the MEC

On April 1, the Minister of EMR announced measures to encourage electrical energy development projects in the four Atlantic provinces. Specific measures included federal funding of a study to organize a new Maritime Energy Corporation (MEC) that would undertake joint development of regional generation and transmission facilities on an integrated basis. There was also provision for a loan program to provide funding for a \$14 million program to strengthen regional transmission ties between N.B. and N.S., and a \$500,000 grant to Newfoundland to meet 50% of

the first phase of a joint Canada-Newfoundland inventory of the remaining hydroelectricity capacity of Labrador. Finally, there would be funding of a study and demonstration project for electrical load management to establish opportunities for reducing capital requirements for power generation by reducing peak loads. At this time, there was an outstanding offer to provide loans up to \$343 million to Newfoundland re the Gull Island transmission system, and grants and loans totalling \$27 million were to be made to P.E.I. in respect to the underwater power cable interconnection with N.B.

**IPL 18 cent
subsidy**

An agreement was signed between Interprovincial PipeLine Limited (IPL) and the federal government on April 7, retroactive to March 1, 1977, whereby the federal government would pay Interprovincial a subsidy of 18 cents per barrel on all crude oil transported east of Toronto to Montreal. The purpose of the subsidy, which was to apply in the period March 1, 1977 - March 31, 1980, was to maintain a single cost zone for domestic crude purchases at Montreal and Toronto. The subsidy rate of 18 cents represented the difference between the Sarnia-Toronto and the Sarnia-Montreal IPL tariffs. Payment was to be made to IPL on behalf of Montreal refiners receiving domestic crude through the Sarnia-Montreal IPL extension.

**New energy
conservation
building codes**

On April 12, the Minister of EMR announced that new energy conservation building codes would be adopted by the 5 federal government departments that account for the bulk of the federal government's construction activities. This followed from a Cabinet decision of 1975 to develop new energy-efficient standards for all buildings as a supplement to the National Building Code. Adoption of the new energy building standards by all provinces was considered an essential component of Canada's long-term national energy strategy and had the potential of resulting in a decrease of one-half of one per cent in the annual overall growth rate of energy use in the country.

**Mackenzie Valley
Pipeline Inquiry
- Berger Report,
Volume 1**

On May 9, Mr. Justice T.R. Berger's Report (Volume 1) on the Mackenzie Valley Pipeline Inquiry was tabled in the House of Commons. Mr. Berger was appointed by Order-in-Council of March 21, 1974 to undertake the inquiry to identify the broad social, economic and environmental impacts that a gas pipeline and an energy corridor would have in the Mackenzie Valley and the Western Arctic (which is the subject of Volume 1 of the Report), and to set out the terms and conditions that should be imposed if a pipeline is built (the subject of Volume 2, published on November 30, 1977). In Volume 1, he recommended that, on environmental grounds, no pipeline be built and no energy corridor be established across the Northern Yukon. He concluded that construction of a pipeline along the Mackenzie Valley would be feasible from an environmental point of view, but recommended that it be postponed for ten years to allow for a settlement of native claims. He also expressed the view that, if a pipeline had to be built to deliver natural gas to the lower 48 States, the Alaska Highway route was preferable from an environmental point of view.

NEB report:
Canadian Oil
Supply and
Requirements

In May, the National Energy Board's report on Canadian Oil Supply and Requirements was issued, forecasting that a shortfall in supply of Canadian crude to meet the domestic markets being served by that oil would likely occur between 1981 and 1983. By 1985, the Board expected a shortfall of some 450,000 b/d and 600,000 b/d in the period 1990 to 1995. Even in the event that its low requirements and high supply forecasts proved to be true, indigenous oil supply was projected to fall short of requirements by about 250,000 b/d in 1985. It seemed evident at the time that imported crude oil would be required in the early 1980s in the markets then being served by indigenous crude. The report, based on public hearings in October 1976, had followed publication of a report on Canadian Oil Supply and Requirements in September 1975. Both of these reports followed decisions made in relation to hearings conducted in April and May of 1974, and announced in a report of September 1974, to the effect that oil exports would be limited when 10 years of future Canadian requirements for indigenous crude oil and equivalent feedstocks could not be assured. At that time, too, it was decided to hold public hearings periodically to receive evidence with respect to the potential producibility of oil, requirements, and the effects of conservation on Canadian consumption and exportable surplus.

Radioactive waste
disposal study

In June a study on safe long-term storage of radioactive waste was commissioned by the federal government. The study was designed to assess the nature and amounts of radioactive wastes likely to be developed in the spent fuel of Canada's foreseeable nuclear power program and to indicate the alternatives that may be available for the safe storage of such wastes.

New energy
conservation
measures,
including CHIP

In June the Minister of EMR and the Minister of Urban Affairs announced a series of energy conservation initiatives directed to reducing the average rate of growth of energy use in Canada to zero per capita by 1985. The key initiative was a \$1.4 billion federally funded Canadian Home Insulation Program (CHIP), to be delivered over the following seven years. Participating provinces would be those which complemented the program through their own conservation measures, including the adoption of energy codes for new buildings; the removal of sales tax on insulation materials, and the reduction of speed on highways. Other new initiatives included a \$1 million national energy bus program to be jointly funded with interested provinces and a \$1.5 million industrial energy conservation R&D program. Under the Canadian Home Insulation Program (CHIP), eligible home owners could apply for taxable grants of up to \$350 to cover two-thirds of the cost of insulation materials. By the end of the year the ten provinces had joined the home insulation program.

Alaska Highway
gas pipeline
route
recommended by
NEB

In June, the National Energy Board, after 214 days of public hearings, recommended to Cabinet approval of the proposal by Foothills Pipeline (Yukon) Limited to construct a pipeline along the Alaska Highway to transmit Alaskan natural gas to the U.S (see July note).

**Prudhoe Bay oil
production**

Oil production in the Prudhoe Bay oilfield on the North Slope of Alaska commenced in June and, by the end of the year, was averaging 800,000 b/d. The field had been discovered in 1968 and has taken almost 10 years to get into production because of pipeline delays.

**Uranium enrichment
plant not
recommended**

A report released in June, entitled "1976 Review of Uranium Enrichment Prospects in Canada" concluded that prospects for a Canadian enrichment plant to serve the export market were less attractive than in 1971. The study reviewed the advancement in enrichment technologies since 1971, the development of Canada's uranium policy, the effects of the economic shocks of inflation and oil price increases, the economic and cost-benefit studies of a privately-proposed gaseous diffusion plant in Quebec, and further evaluated the use of enriched uranium as a fuel for CANDU nuclear systems. On the basis of this study, the federal government concluded that there would be no reason to support a uranium enrichment project as it would give very limited benefits to Canada.

**The June 1977
Canada-Alberta
oil pricing
arrangement**

In June the federal and Alberta governments entered into a two-year crude oil pricing arrangement. This understanding evolved out of a series of successive federal-provincial meetings of Energy Ministers and Deputy Ministers, against the background of the federal government's firm commitment, in its April 1976 "Energy Strategy for Canada" report, to move Canadian oil prices towards international levels and gas prices to an appropriate relationship with oil prices. Up to November 1975, gas was sold by producers at the wellhead or the field gate under a normal supply/demand relationship. In some areas there was only one prospective gas purchaser but many contracts provided for periodic renegotiation to reach a fair market price. The June understanding took the form of an exchange of letters in June 1977 between the federal and Alberta Energy Ministers. It envisaged four increases in the oil price, each of \$1 per barrel, occurring at six-month intervals starting on July 1, 1977 provided, inter alia, that any particular increase did not bring the price of the average barrel of Alberta oil delivered to Toronto above the average price of crude oil and imported products in the Chicago area. Canadian wellhead/Persian Gulf port parity was also a price constraint. The increases scheduled for July 1, 1977 and January 1 and July 1, 1978 subsequently were implemented without breaking the "Chicago ceiling", bringing the average price of Alberta oil at the wellhead to \$12.75 and the average price at Toronto to about \$13.75 in July 1978 (see November 1978 re extension of the June 1977 pricing arrangement). The natural gas price increases were to follow the oil price increases by one month.

**Maritime Energy
Corporation -
feasibility
study**

On June, 21 the Government of Canada and representatives of the three Maritime governments entered into an agreement to undertake studies on the establishment, nature and structure of the Maritime Energy Corporation (MEC) or some appropriate alternative. The studies were to provide guidance on the establishment of the MEC which would have responsibilities relative to regional electrical planning, project development, day-to-day operation of Maritime systems, optimizing regional benefits achievable from transmission ties external to the Maritimes, and R&D.

NEB report on
northern gas
pipeline
applications -
Alaska Highway
recommended

On July 4, the National Energy Board released its decision on the Northern Gas Pipeline Applications. Canadian Arctic Gas Pipeline Limited (CAGPL) had submitted its application to the NEB in March 1974 to construct a gas pipeline for transporting Prudhoe Bay, Alaska and Beaufort Basin gas southward via a Mackenzie Valley route. In a competing application, Foothills Pipe Lines Ltd. had applied in March 1975 along a similar route but for Canadian gas only. In August and September 1976 a third set of applications for pipeline construction was made by a group of associated companies called the Foothills (Yukon) Project Group, proposing to move Alaska gas through Canada to U.S. markets. In February 1977 this Group filed an alternative proposal to construct an "express line" along the Alaska Highway route without using existing Westcoast and Alberta Trunk Line facilities, and in March withdrew its earlier proposal. The NEB found that a pipeline to transport Mackenzie Delta gas to Canadian markets would be needed during the first half of the 1980s. The Board had specific environmental concerns relative to a pipeline route from the Alaska-Yukon to join the Alberta system but held that the social and economic impact of the Foothills (Yukon) project could be held to tolerable levels. A necessary complement to the undertaking given by Foothills (Yukon) to construct a Dempster link to the Mackenzie Delta would be a re-routing of the Dempster line via Dawson, Yukon. The Board found that the CAGPL route would be unacceptable from an environmental point of view whereas environmental concerns associated with the Foothills (Yukon) route could be overcome. In its decisions and recommendations the NEB denied the Foothills and CAGPL applications via the Mackenzie Valley. However, it was prepared to issue certificates of public convenience and necessity for the Foothills (Yukon) proposal subject to conditions defined in its report related to further studies, provision for delivery of Delta gas, and assistance in financing socio-economic interest costs of the project north of the 60th parallel.

Forecast benefits
of the Foothills
(Yukon) gas
pipeline
proposal

In its findings, announced in July, relative to Northern Gas Pipeline Applications (see above), the NEB estimated that the net economic benefits of the Foothills (Yukon) project, along the Alaska Highway route, including the Dempster Link, would be about \$3.5 billion. Employment generated would be some 100,000 person-years over 5 to 7 years. There would be other national and regional benefits related to the increase in economic activity. In addition to these benefits, the Board forecast the beginning of a gas supply deficiency in 1983 in relation to projected domestic and export markets if northern gas was not available. This deficiency would reach 1.2 trillion cubic feet a year by 1995 if provision was not made for northern gas supply.

Lysyk Alaska
Highway pipeline
inquiry

In July the Lysyk inquiry on the Alaska Highway Pipeline reported to the Minister of Indian and Northern Affairs, having concluded in its assessment that the social and economic impacts of a natural gas pipeline through the southern Yukon could be kept within acceptable limits, thereby confirming the conclusions of the NEB.

Energy R&D principles

In July, provision was made for significantly increasing the level of federal funding devoted to Energy R&D in order to reduce the serious gap between energy supply and demand foreseen in Canada beginning in the 1980s. In developing proposals for the use of R&D funds, departments and the Energy R&D Panel would proceed in accordance with the following principles: a strategy based on criteria of lowest cost energy, highest probability of technical success, and highest contribution to energy self-reliance; appropriate balance between research and development, maintenance of adequate awareness programs, and the encouragement of risk-taking in the private sector and also cost sharing; and inclusion in the cost of energy R&D projects of any associated expenditures for measures aimed at avoiding or correcting environmental damage.

Foothills (Yukon) Pipeline approval following Parliamentary debate

In August, the federal government gave Foothills (Yukon) Pipe Line Ltd. tentative approval for a natural gas pipeline for transmission of Alaskan gas crossing the Yukon. Alberta and B.C., with provision for a future interconnection, via the Dempster Link, with Mackenzie Delta gas. In a Press Conference of August 8, following an extensive Parliamentary debate, the Prime Minister, in announcing this decision, noted that the federal government had been advised by the U.S. President (Carter) that his Administration was prepared to join in discussions with Canada in order to explore whether a basis could be established for agreement between the two countries concerning routing of a pipeline through the southern Yukon, the timing of its construction, provision for the Dempster Link to the Mackenzie Delta, and the financial feasibility of the system. There was also need for assurances relative to protection of the interests of the people in the North and protection of the environment. With the achievement of agreement in principle with the U.S., the federal government would pursue wide-ranging consultations with interested provinces, territorial governments, native organizations, community groups and other concerned interests. This statement followed a two-day debate in the House of Commons, which commenced on August 4 and reviewed all aspects of the northern gas pipeline issue.

Renewable energy research

In August, the federal government awarded a \$170,000 contract to study all aspects of the production of synthetic fuels from forest biomass resources. This followed awards totalling \$45,000 in July to three organizations to provide information on renewable energy resources. These initiatives were in keeping with a policy of giving greater attention to the potential of renewable energy sources in meeting future energy requirements.

Amendments to Canada Oil and Gas Lands Regulations - opens up 1 billion acres and gives access for Petro-Canada

In August announcement was made of amendments to the Canada Oil and Gas Land Regulations which would open up over one billion acres of land under federal jurisdiction in the north and offshore areas for oil and natural gas exploration. The new system enabled the processing of existing applications for oil and gas leases on some 31 million acres held under permit, and opened the door for the selective issuing of new exploration rights on about

700 million acres of Crown reserve lands which had been surrendered to the Crown. In addition, more than 600 million acres of Canada lands that had never been covered by permit or lease became available for exploration on a selected basis. Three entities were involved in the original land tenure systems - an exploration licence, an exploration permit, and an oil and gas lease. After the August 1977 amendments, no new exploration permits could be issued, the place of the permit being taken by a new entity, the exploration agreement. The amendments also provided special options for Petro-Canada to obtain up to 25% of any lands surrendered to the Crown over a period of 7 years from that date. Petro-Canada would also be able to acquire up to a 25% working interest on lands where the normal permit had expired and no significant finds of oil or gas had been made, but not in cases where the net Canadian equity represented by companies involved was more than 35%.

The Hare report on
the Management
of Nuclear
Wastes

In August a report entitled "The Management of Canada's Nuclear Wastes" (the Hare report) was completed. It had been commissioned by EMR to provide the government and the public with the views of an independent expert group on the subject of nuclear waste disposal and thereby contribute to the development of a national plan for the management and disposal of nuclear reactor wastes and wastes from other components of the nuclear fuel cycle, including mining, refining, fuel fabrication, and the operation of nuclear powered generating stations, and also from other industries. The report set out certain key target dates as a guide for a program of R&D and construction. Its 19 conclusions and recommendations included the statement that there were good prospects for the safe, permanent disposal of reactor wastes and irradiated fuel. Provided the government proceeded immediately to the program of R&D, there would be no reason why the disposal problem need delay the country's nuclear power programs. The report was published in November.

Canada-U.S.A.
Agreement on
the Northern
Pipeline

In September the President of the Privy Council announced that Canada and the U.S. had successfully concluded negotiations on a cooperative inter-governmental agreement providing for construction of a northern gas pipeline which would initially transport Alaskan natural gas to southern U.S. markets and would also provide economic access to Canadian gas in the Mackenzie Delta, as and when it was required to meet Canadian energy needs. A decision by the two countries to proceed with construction of the pipeline under terms and conditions of this inter-governmental agreement would provide major economic and industrial benefits throughout much of Canada. The September 9 statement in the House of Commons by the President of the Privy Council included considerable background information on the Northern Pipeline as well as details concerning the Canada-U.S.A. Agreement on Principles Applicable to a Northern Natural Gas Pipeline.

President and
P.M. agree in
principle on
Northern
Pipeline

On September 8, the President of the U.S. and the Prime Minister participated in a press conference on the Northern Pipeline, following a meeting in which they agreed in principle on the proposed project (see previous item). They spoke of the major benefits which each country would derive from this cooperative project, taking note of the importance of protecting the environment and the interests of the northern people. Reference was made to a similar giant project -- the Seaway -- which had been successfully completed a generation before by the two countries. The subsequent signing of the Northern Pipeline Agreement, on September 20, 1977, culminated studies and hearings within Canada and the U.S. that had been underway since the late 1960s on various Northern gas pipeline proposals. Commitment of both countries to the Transit Pipeline Treaty, as signed on January 28, 1977, was reiterated in the Agreement. The Agreement called for completion of the Pipeline to enable initial operation by January 1, 1983 but was subject to conditions regarding routing, the construction timetable, taxation, and the availability of the pipeline for the transportation of Canadian gas.

IEA oil import
commitment

Canada continued to be an active participant in the International Energy Agency (IEA) which was established in November 1974. In October, the Energy Ministers of the 19 member countries of the IEA met in Paris under the Chairmanship of the Canadian Minister of Energy, Mines and Resources. The Ministers adopted a 12-point energy program aimed at holding oil imports in 1985 to no more than 26 million barrels per day. For Canada, the target was to limit oil imports in 1985 to one third of total requirements, or 800,000 b/d, whichever was less.

Increased energy
R&D funding

In October, the Minister of Energy, Mines and Resources announced an increase of \$15 million in supplementary funding for federal energy R&D for 1978-79, bringing the total expenditure planned for that fiscal year to \$145 million. Of the additional funds, \$6.3 million was allocated to renewable energy R&D and \$5.6 million to energy conservation, these two components of the R&D program accounting for almost 80% of the increase.

P.E.I. cable
completed

The \$36 million electric power cable, connecting P.E.I. with the New Brunswick Power Commission was completed and placed in service in October. The federal government made grants (\$18 million) and loans (\$9 million) totalling \$27 million available for the project to ensure lower-cost electricity for P.E.I. Two 100-megawatt cables carry power across the 21.7 km interconnection, built at a cost of \$39.2 million.

Speech from the
Throne - energy
objectives -
forecasts of
energy shortages

In the Speech from the Throne on the opening of the Third Session of the Thirtieth Parliament on October 18, the Government reaffirmed its policy to work with the provinces toward the goal of self-reliance, particularly encouraging exploration and conservation to reduce the country's dependence on imported oil. Exploration, which had appeared promising on Canada lands in the North, was to be further encouraged by the proposed northern gas pipeline. A Bill was to be placed before Parliament to

seek approval for the implementation of the pipeline agreement, negotiated with the Government of the U.S., which would "launch one of the largest civil engineering projects in the history of the world and provide immense benefits to Canada through jobs, investment, the purchase of materials, and through easier and cheaper access to northern gas reserves." In his participation in the debate on the Speech from the Throne on October 21, the Minister of Energy, Mines and Resources identified additional energy project objectives including accelerated development of the oil sands and heavy oil resources, expansion of the natural gas market in Quebec, improvement of the energy supply situation in the Atlantic provinces, and increased emphasis on energy conservation and renewable energy initiatives. He also reported on the meeting of the International Energy Agency, held earlier in October, when forecasts were made by industrialized countries of an energy crisis by 1985 when OPEC nations would not be able to meet the oil needs of the western economies. (By 1985-86 a surplus of world oil supplies had driven the OPEC price down to less than \$10 a barrel from the 1984-85 peak of \$34 U.S.).

IEA research projects

In October, Canada signed three energy research agreements with member IEA countries on hydrogen, wind energy research and fusion research. Earlier in the year Canada had joined other IEA research projects concerned with coal, conservation, nuclear safety, and fusion.

The 1972-75 international uranium marketing arrangement

On October 14, the Minister of EMR issued a Press Release relative to the actions the government took in the period 1972-75 to protect the Canadian uranium industry from the consequences of U.S. actions. In 1972 the government had approved an international marketing arrangement for uranium whereby certain Crown corporations were authorized to participate in the arrangement, and a regulation was passed under the Atomic Energy Control Act requiring Canadian uranium producers to comply with the pricing and quota provisions which had been agreed upon internationally. It had been considered a matter of public policy for the government to protect the uranium producing industry from extinction and to do so by helping to stabilize world prices at levels above the cost of production. The October 14 statement, and accompanying documentation, set out full details of the considerations leading to Canada's participation in this program and of the 7 general Directions dealing with prices and quotas that were issued between 1972 and 1975 by the Minister to the Atomic Energy Control Board. The statement also dealt with the Uranium Information Security Regulations that were designed to protect Canadian sovereignty in the face of extraterritorial application of U.S. legal processes relative to court proceedings in the U.S. Those proceedings were concerned with the sale by Westinghouse Electric Corporation of uranium it did not have and stood to lose over \$2 billion if it fulfilled its contractual obligations in 1975.

**Nuclear Control
and
Administration
Bill**

The Nuclear Control and Administration Act (Bill C-14) was tabled in the House of Commons on November 24 and was designed to provide for a reconstituted Atomic Energy Control Board, responsible for regulating all segments of the nuclear industry, with all commercial aspects relating to exploration, mining, processing, import, export, sale or disposal of uranium to be under supervision of EMR. The Bill died on the Order Paper with the end of the Session in 1978.

**Petroleum
Corporations
Monitoring Act**

The Petroleum Corporations Monitoring Act (Bill C-12) was introduced in the House of Commons for first reading on November 2. The legislation was designed to enable the Government to better plan and develop policies for the management of Canada's energy supplies and resources. Provisions of the Act included the filing by companies on June 30 and December 31 of each year details on all sources of funds together with an indication of their allocation to various activities within the company. The objective was to provide assurance that revenue from increased oil and gas prices was being reinvested by industry in greater exploration and development in Canada. Bill C-12 received Royal Assent on June 30, 1978.

**Mackenzie Valley
Pipeline Inquiry
- Berger Report,
Volume 2**

On November 30, Mr. Justice T.R. Berger's Report (Volume 2) on the Mackenzie Valley Pipeline Inquiry was presented to the Government (see note of May 1977 on Volume 1). Volume 2 outlines the terms and conditions applicable to the construction of a Mackenzie Valley Pipeline if, and when, it is built. The recommendations are divided into three groups: social and economic recommendations; environmental recommendations; and recommendations applicable to the project itself. At the heart of the recommendations is the need to settle native claims prior to the construction of a Mackenzie Valley Pipeline. Mr. Berger's published report is entitled "Northern Frontier, Northern Homeland".

**Imperial Oil Cold
Lake project**

Imperial Oil Limited in November applied to the Alberta Energy Resources Conservation Board to build and operate a major heavy oil recovery and upgrading project near Cold Lake. The design called for a project capacity of up to 140,000 barrels a day of synthetic crude oil. Cost of the project over its entire life was estimated as high as \$4 billion.

**Canada Oil and
Gas Act**

In December, the federal government introduced a bill (Bill C-20) in Parliament to regulate the disposition and development of oil and gas rights in Canada Lands which would implement policy intentions announced in May 1976 and applying to about 1.3 billion acres of Crown reserve land. It included a minimum 25% Canadian participation requirement for obtaining a production licence, and provisions to give special rights to Petro-Canada, including a limited (up to 25%) "back-in" privilege on leases up for renewal where no discovery had been made. This Bill died on the Order Paper at the end of the Session in 1978.

Polar Gas
pipeline
application

In December Polar Gas Ltd., a consortium including TransCanada Pipelines, Panarctic Oils Ltd., Tenneco Oil Canada Ltd., and the Ontario Energy Corporation applied to the NEB to construct a 2,338-mile natural gas pipeline from the Arctic Islands to join the TransCanada system at Longlac in northern Ontario. Polar Gas had commenced research and feasibility studies in 1973.

Coal policy
and studies
- including
resource
assessments,
Canada - B.C.
coal agreement

A Preliminary Statement for a Canadian Coal Policy was discussed at the Energy Ministers' Conference held in Ottawa in December, and further consultations on the policy were planned for 1978. During 1977, the federal government had commenced a continuous appraisal of Canada's coal reserves and published a first report "Assessment of Canada's Coal Resources and Reserves". Under the terms of the Canada-B.C. Northeast Coal Subsidiary Agreement, the federal government undertook during 1977 to share jointly in the cost, up to \$10 million, of studies to evaluate the Northeast B.C. coal potential and related transportation and other infrastructure needs.

LaPrade heavy
water plant

The federal and Quebec governments announced in December an agreement which would allow the continuation of the LaPrade heavy water plant at Becancour adjacent to the Gentilly nuclear complex. The heavy water plant was being built by AECL. The estimated total cost of the plant, on which construction had commenced in November 1974, was \$846 million. As part of the agreement to continue with LaPrade, the Premier of Quebec would commit one CANDU reactor of at least 600 MW and buy sufficient heavy water to charge that reactor plus two additional reactors of 600 MW each during the 1980s.

Tenneco LNG
import-export
proposal - N.B.

On December 15, Order-in-Council approval, on the recommendation of the Minister of EMR, was given with respect to two licences issued to Tenneco LNG Inc. for the importation of liquified natural gas at a place near St. John, N.B., and for the exportation of an equivalent volume of natural gas at a point near St. Stephen on the Canada-U.S. border. The proposal to import LNG from Algeria for re-export to the U.S. had been the subject of considerable study, and following hearings in 1977 the National Energy Board granted licences covering the import and export of 7.5 trillion cubic feet of gas over a 20 year period. The total cost of the project was estimated at \$700 million. Notwithstanding Canadian approval, the proposal was rejected by the U.S. Energy Regulatory Administration on December 18, 1978.

Petroleum
Administration
Act amendment
re: Syncrude
oil price

Legislation to amend the Petroleum Administration Act was tabled for first reading in the House of Commons on December 20. The principal purpose of the Bill was to enable effect to be given to the Government's commitment to provide the international oil price for the output of the Syncrude oil sands plant, scheduled to go into production early in 1978 at an initial rate of 50,000 barrels daily, rising to 125,000 b/d by 1981. The Bill provided for the equivalent of crude oil import compensation to be paid to Canadian refiners of Syncrude products or other high-cost domestic petroleum sources designated by the Governor-in-Council.

Oil exchanges to
supply Northern
Tier U.S.
refineries

In December, the Minister of EMR commented on the effect of the progressive reduction in Canadian crude exports on landlocked Northern Tier refineries in the U.S. midwest, noting that notwithstanding the decision taken following the NEB's October 1974 "Report on the Matter of the Exportation of Oil" to reduce exports, Canada had been prepared to release additional export volumes to those refineries in return for U.S. crude supplied into existing pipelines serving Ontario and Quebec from western Canada, essentially the Lakehead portion of the Interprovincial Pipeline system. With the Northern Tier refineries facing further shortages in 1978, Canada had now advised the U.S. that, in order to facilitate additional exchanges, it would be prepared to permit deliveries of Canadian crude in exchange for overseas crude entering the Lakehead system and destined for refineries at Sarnia, Toronto and Montreal.

U.S. commitment
to Alaska
Highway gas
pipeline

A number of initiatives were taken in the United States in 1977 in support of the proposed Alaska Highway natural gas pipeline (Alcan Pipeline) following the signing with Canada of the Northern Pipeline Agreement on September 20. Congress enacted by Joint Resolution the President's decision to build the pipeline and the President signed the Joint Resolution into Law on November 8. On December 16, the U.S. Federal Regulatory Commission (FERC) issued a conditional certificate enabling Northwest Alaskan Pipeline Company to proceed with pipeline design and planning activities for the section in Alaska, while Foothills (Yukon) proceeded with design and preparation for the Canadian section.

Denison-Ont.
Hydro uranium
contract,
1980-2011

In December, Denison Mines Limited and Ontario Hydro jointly announced an agreement whereby Denison would provide Ontario Hydro with some 48,465 tonnes of uranium from 1980 to 2011. Prices would be determined from time to time according to a formula that took into account the cost of production and agreed margin, and world price. The contract provided for adjustments in the amount of uranium to be delivered if requirements should diminish. In 1977 uranium exploration in Canada increased considerably and a number of discoveries were made in northern Saskatchewan.

Energy Ministers'
Conference

At the December 1 Energy Ministers' Conference, federal and provincial Energy Ministers re-affirmed the national emphasis on energy conservation and the need to develop domestic oil supplies to reduce the country's dependence on oil imports. There was agreement that the world energy supply and demand balance was a matter of serious concern and that Ministers would do their utmost to reduce imports, in terms of the International Energy Agency objectives.

Energy publica-
tions in 1977

By December, several (EMR) energy publications had been completed and published during the year including: "Energy Conservation in Canada: Programs and Perspectives"; "Energy Demand Projections: A Total Energy Approach"; and "The Management of Canada's Nuclear Wastes". During the 1970s, and into the 1980s, EMR published a considerable number of reports on energy conservation procedures and benefits.

Canada - U.S.
energy
relations

A review of Canada-U.S. energy relations in December showed that there continued to be a number of issues of direct concern to the governments of both countries. While the U.S. government appeared to be interested in dealing with the Canada-U.S. energy relationship in terms of a "package" including all major bilateral issues, the Canadian approach was to deal with issues on the basis of their individual merits, avoiding linkages of unrelated issues but leaving open the possibility of cooperation on a case-by-case basis. Matters of particular interest and concern at the end of 1977 included the following: the U.S. desire for increased gas imports from Canada by early construction of the southern portion of the Alaska Highway natural gas pipeline (the pre-build); the interest of Eastern Canada petroleum refiners in preferential access to U.S. markets but being faced with competition from Venezuela and Caribbean export refineries; the possibility of several sites in Eastern Canada being selected for part of the U.S. government's strategic petroleum storage reserve, the Wabana mine near St. John's having received extensive study; the efforts of both countries to deal with pending oil shortages at U.S. Northern Tier refineries following the Canadian decision in the mid-1970s to phase down oil exports, with much attention being given in 1977 to oil "exchanges"; the efforts in Canada to promote a LNG port and related pipeline facilities as part of the U.S. plan to import LNG from Algeria, but with the U.S. Administration becoming less interested in LNG imports because of security of supply concerns; the U.S. interest in a joint study with Canada of bulk electricity exchanges but with Canada seeing no realistic prospect of a quantum increase in electricity exports to the U.S. because virtually all low cost sources of electrical energy had been developed; continuing interest of the U.S. in the transportation of Alaskan oil from the West Coast to serve its inland markets, possibly via the Kitimat proposal for which there was strong opposition in Canada on environmental grounds; and concern in Canada about the continuing availability of U.S. coal for Ontario markets, with the coal strike in the U.S. in 1977 underlining Canada's vulnerability. These and other issues were under consideration at a time when Canada was trying to cut back on crude oil exports and restrain gas exports due to future supply uncertainties. The country had no large blocks of electrical power for export, and remained vulnerable to coal supply because of uncertain U.S. labour relations. At the same time, Canadian uranium companies were facing U.S. agreement subpoenas for proprietary information relative to an informal international marketing arrangement that operated in the early 1970s. Notwithstanding such issues and problems, the two countries had many common interests and objectives in the administration of their energy economies, as illustrated by the announcement in September of the Canada-U.S.A. Agreement on Principles Applicable to a Northern Natural Gas Pipeline.

Eneraction
conservation
program

On December 16, the Minister of EMR announced that the Office of Energy Conservation (OEC) would participate in the \$150 million Federal Labour Intensive Program through an OEC program, Eneraction, which would employ 2000 people in the first 10 months of 1978 in N.B., Quebec, Ontario and B.C. on conservation-related services and assistance programs.

THE YEAR 1978

Exposure to medium or long term oil shortages - NEB inquiry

In January the Minister of EMR requested the NEB to investigate and report to him on a range of possible oil supply situations over the course of the succeeding 10-15 years and the import dependence which might develop for Quebec and the Atlantic Provinces and also for British Columbia. This study was requested in view of the indication from some projections of domestic oil production that the federal government might be faced with a difficult decision as to how to allocate inadequate supplies between eastern and western market areas. Considerable effort had been made to reduce the vulnerability of these regions through extension of the IPL pipeline to Montreal and studies of greater natural gas use and greater emergency oil storage. However, in the latter part of the 1970s, there was increased uncertainty about the security of oil supply, particularly in eastern areas of the country.

Oil export charge reduced

With the increase of \$1.00 per barrel in the wellhead price of Canadian crude oil, effective January 1, the Minister of EMR recommended to the Governor in Council that charges applicable to exports of crude oil and equivalent hydrocarbons be reduced by \$1.00, effective February 1, 1978.

Electrical energy research

In January the Minister of EMR and the President of the Canadian Electrical Association signed an agreement to share the costs of a research program on electricity. The agreement formalized arrangements for contributions by the Government of Canada to the CEA begun in 1974. The program was designed to improve the techniques and reduce the costs of generating, transmitting, using, and conserving electricity.

\$265 million for Cape Breton coal

In January, the federal government announced approval in principle of a 5-year, \$265 million plan for new coal mine developments and rehabilitation of existing mines in Nova Scotia. Engineering and feasibility studies were to begin immediately with final approval conditional upon the outcome of these studies.

Canada-U.S. energy studies

U.S. Vice President Mondale visited Canada in January at which time the two countries agreed to undertake a joint study of oil storage possibilities within Canadian territory and also a study of the feasibility of increasing electric power exchanges.

Satellite surveillance of offshore activity

In January a report prepared by a federal government Task Force on Satellites and sovereignty was released. The extension of Canada's offshore limits to 200 miles, together with increasing oil and gas exploration and tanker traffic in the Arctic and off the east coast had led the Government to consider the use of radar-equipped surveillance satellites to augment aircraft and ship surveillance. The task force had conducted a feasibility

study of a Canadian surveillance satellite to be operational in the early 1980s to help meet predicted surveillance needs in the period 1980-2000. "Surveillance" includes monitoring both environmental conditions, such as sea state, ice, fogs, winds, oil pollution, etc., and human activity - ships, drill rigs, and exploration parties. The task force report examined five options for a Canadian surveillance satellite and, as a result of its work, the Government commenced negotiations with the U.S. National Aeronautics and Space Administration (NASA) to participate in the SEASAT satellite program.

**Nuclear agreement
between Canada
and EURATOM,
and prior
safeguards
initiatives**

An agreement was signed between Canada and the European Atomic Energy Community (EURATOM) on January 16 for cooperation in the peaceful uses of atomic energy. This safeguards agreement was an updating of the original agreement which had been signed on October 6, 1959. Following completion of the updating agreement, the Canadian government decided to resume shipments of uranium to the European Community. Shipments had been suspended since January 1977 when Canada had initiated stronger safeguards. The January 1978 agreement followed a series of earlier non-proliferation initiatives by Canada, including ratification of the Treaty on the Non-Proliferation of Nuclear Weapons (NPT) on January 8, 1969. This Treaty entered into force on March 5, 1970. On February 21, 1972, Canada concluded a Safeguards Agreement with the International Atomic Energy Agency (IAEA) to permit Agency officials to inspect nuclear facilities in Canada to ensure that no nuclear material was diverted from peaceful use to the manufacture of nuclear weapons or other nuclear devices: "An Agreement for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons". On December 20, 1974, the Canadian government decided to negotiate additional safeguards and by June 1977 this had been completed with all countries except EURATOM countries, and Switzerland and Japan. In December 1976, Canada announced further requirements that its new customers must either be signatories of the NPT or agree to "full scope safeguards", meaning that all nuclear installations in a country, whether supplied by Canada or not, must be available to safeguards inspection. With the signing of the January 16, 1978 agreement, as noted above, EURATOM had met all of Canada's safeguards requirements in relation to the supply by Canada of uranium and other nuclear material and all nuclear facilities. (EURATOM countries: Belgium, Denmark, France, the Federal Republic of Germany, Ireland, Italy, Luxembourg, The Netherlands, and the United Kingdom).

**Atomic Energy
Control
Regulations
concerning
health hazards
to uranium
miners**

In January, the Atomic Energy Control Regulations were revised to make provision for higher standards of control relative to maximum permissible annual exposures to ionizing radiation for workers in uranium and thorium mines and mills. The 1978 Regulations also amended the definition of 'nuclear facility' to include "a uranium or thorium mine or mill", thereby bringing these facilities more clearly within the scope of the Atomic Energy Control Board's regulatory activities. The 1978 amendments followed 1974 Regulations; the establishment in 1975 of a Mine Safety Advisory Committee; and other measures in the

1970s all directed towards greater safety and health control in the uranium industry. The findings of the Ham Commission Report of 1976 were instrumental in the action taken by the AECB in drafting its 1978 Regulations which specified a maximum permissible exposure to radon daughters of 4 WLM (Working Level Months) per year. (The WLM exposure unit is a measure of the potential for radiation dose which a miner can be expected to inhale from a mine atmosphere.)

**Energy capital
expenditures
to 1990 -
First Ministers'
Conference**

A Conference of First Ministers was held in February to consider economic issues and prospects. The Minister of EMR outlined a number of energy projects that could impact favourably on economic development in the medium-term future and it was agreed that certain projects including Lower Churchill power and Saskatchewan heavy oil development should have high priority. At that time, it was estimated that \$180 billion of total energy-related expenditures would be required through to 1990. Projects already underway and projects for which firm estimates were available aggregated \$55 billion in construction costs and included oil, gas, electricity and conservation projects.

**Federal R&D
funding**

Energy R&D funding provided by the federal government, as announced in February, was to be increased by almost \$15 million in 1978-79 to raise the total allotment for that fiscal year to \$144.5 million compared with expenditures of \$129.9 million in 1977-78 and \$120.2 million in 1976-77. The percentage of R&D funds to be spent on renewable energy and energy conservation increased from 11% in 1976-77 to 21% in 1978-79. While there had been no increase in the R&D funds for nuclear energy research in that period, nuclear research had only declined from 75 to 62 in percentage terms in relation to the total R&D budget.

**Northern
Pipeline Bill**

Debate on second reading commenced on February 13 for Bill C-25, Northern Pipeline Act. This legislation implemented the terms of the co-operative agreement between Canada and the U.S. to serve the mutual interests of the two countries. The agreement had been signed in Ottawa on September 20, 1977. The legislation also established the Northern Pipeline Agency to provide a single regulatory authority to exercise all federal responsibilities directly related to the building of the pipeline system by Foothills (Yukon) Pipeline Limited. The primary objective of the Agency, together with other provisions of the Bill, was to ensure that the pipeline project was planned and implemented in a way that would maximize the potential economic, industrial, energy and social benefits for Canada, while at the same time minimizing adverse social and environmental impacts. The 2,754-mile, 48-inch diameter pipeline was designed to deliver Prudhoe Bay, Alaska, natural gas to U.S. markets by following the Alaska Highway route and crossing Alberta to the U.S. Provision was made for the construction of the Dempster lateral to transport Mackenzie Delta gas to the Alcan system, at a junction in the Yukon, when Canada would need to draw on that frontier gas to supplement Western Canada supplies. It was estimated that some 100,000 person-years of employment would be generated in Canada during construction

of the total system. It was also estimated that construction would start in January 1981, giving three years for preparation and for settlement of Yukon Indian land claims, and for financing the project. By the mid-1980s there was still no indication as to when financing would be possible.

Maritime Energy Corporation

In February, the governments of New Brunswick, Nova Scotia and P.E.I. and the federal government accepted in principle the establishment of the Maritime Energy Corporation which had been recommended in 1977 following a joint federal-provincial feasibility study. The objective of the Corporation was to improve the efficiency of electric utility expansion in the region through joint operation, planning and joint ownership of facilities in the three Maritime provinces.

Lower Churchill Development Corp.

On February 14, the federal and Newfoundland governments issued the following joint statement:

"Agreement in principle has been reached to the establishment of a Lower Churchill Development Corporation. The Corporation would initially have as equity shareholders the province of Newfoundland and Labrador and the Government of Canada, and would have the primary objective of establishing a basis for the development of the hydroelectric potential of Labrador with the first emphasis being on the Lower Churchill River downstream of the existing Churchill Falls generating station." (see also note for November 1978)

As noted in the February 1975 comment on the Lower Churchill, studies have been underway since the late 1960s on the possibilities of supplying the Island of Newfoundland with electric power from the Gull Island site. In November 1975, because of increased cost estimates Newfoundland had decided to defer development of Gull Island and give priority to the transmission phase, but this depended on satisfactory arrangements with Hydro Quebec for supply of a block of power from the Upper Churchill Falls plant over and above the 300 MW which Newfoundland could recall. No progress was made in this respect and, in a letter of May 18, 1976, the Premier of Newfoundland advised of his government's intention of proceeding with a court action unless Quebec agreed to release 800 MW from Churchill Falls for Newfoundland's own use at the same price as paid by Hydro Quebec. As this matter was not resolved, work on the transmission line was terminated and new assessments got underway following the signing of an agreement, in November 1978, by the federal and Newfoundland governments to establish the Lower Churchill Development Corporation.

Tidal power studies

In March the federal government accepted the recommendations of the Fundy Tidal Power Review Board that a pre-investment design study should be undertaken on the Cumberland Basin site in the Bay of Fundy. This report covered the conclusion of the second major study undertaken on the development of tidal power in the Bay of Fundy. The first report, presented to the federal and provincial governments in 1970, concluded that Fundy Tidal Power was

not then economic in comparison with alternative sources of generation in the Maritime provinces. The more recent study was undertaken under authority of a federal-provincial agreement of December 3, 1975 at a cost of some \$3.6 million over a two-year period following preliminary work initiated in February 1972. The decision to proceed with the design study, costing \$33 million, was subject to willingness of N.S. and N.B. to participate on a 50:50 basis. The decision to proceed at this stage did not imply a plan to undertake the estimated \$3 billion investment in the full-scale tidal project, but it would provide the necessarily more detailed design information for an eventual decision as to whether to construct a tidal power plant.

**Energy bus
program**

In March, the federal and Saskatchewan governments signed an agreement to share the costs of an "energy bus" program. The program offered unique and diverse on-site computerized energy audits designed to provide free assistance to industry, business and public institutions to reduce energy costs by identifying energy conservation opportunities. The program had been operating successfully in Ontario for two years, and in Nova Scotia and P.E.I. since mid-1977.

**Nelson River hydro
development
agreement - EMR
responsibility**

Effective March 31, 1978, Atomic Energy of Canada Limited (AECL) ceased to be Canada's agent in terms of Section 7 of the 1966 Agreement between Canada and Manitoba on Nelson River hydro development. Administration of the Agreement by Canada became the responsibility of the Department of Energy, Mines and Resources.

**Financing energy
self-reliance**

An EMR analysis, published in March, entitled "Financing Energy Self-Reliance" concluded that an estimated investment of \$180 billion over the period 1976-1990 needed to finance energy self-reliance should not impose unmanageable strains on the Canadian economy. The analysis of industry's ability to raise that amount of capital indicated that some financing problems for specific energy projects were possible, but fears of a widespread capital crunch were groundless. Two scenarios analyzed projected energy expenditures of some \$180 billion: one was optimistic about frontier oil and gas supplies and was based on three frontier pipelines; the second scenario called for only one frontier pipeline but placed more reliance on synthetic crude oil from the oil sands and heavy oils of Western Canada. The latter scenario contemplated capital requirements of \$110 billion for electric power generation, \$42 billion for petroleum development including oil sands and refining, \$17 billion for pipeline, \$9 billion for natural gas and oil marketing and distribution, and \$3 billion for coal and uranium development. Based on historic relations between domestic and foreign sources for external financing requirements, the inflow of foreign capital would have to be in the range of \$52-\$61 billion, for a yearly average of about \$3.8 billion during the 15-year period covered by the analysis. This is about half the \$8 billion borrowed by Canada abroad in 1976.

Canada
participates in
IEA research
projects

Canada signed four new international research agreements at the International Energy Agency (IEA) Governing Board meeting in Tokyo in April, bringing to 14 the number of IEA energy research projects in which Canada was participating. The four new agreements were all directed to renewable energy and conservation projects. The IEA's energy research, development and demonstration program is based on close cooperation and collaboration among 19 member nations to reduce their dependence on declining oil resources.

Northern
Pipeline Act
passed giving
approval to
Alcan pipeline
but project
delayed

In April, the Northern Pipeline Act was approved by Parliament. It received Royal Assent on April 12 and was proclaimed on April 13 (S.C. 1978, c.20). In September 1977 the U.S. and Canadian governments had signed an Agreement to construct a pipeline system, estimated to cost some \$10 billion, to take delivery of Prudhoe Bay gas for U.S. markets and to provide for the later transportation of Mackenzie Delta gas to Canadian markets. The Alaska Highway pipeline project (ALCAN) was approved by the U.S. Congress in November 1977, and the passing of the Northern Pipeline Act provided for Canadian approval. The Act sets forth the Agreement with the U.S., of September 20, 1977, as Schedule I. It also created the Northern Pipeline Agency to oversee the design and construction of the pipeline. Under the Act, the National Energy Board was given responsibility with respect to the incentive rate of return, the financing and tariffs, and the granting of "leave to open" orders. However, the project was being delayed pending resolution of the gas pricing issue in the U.S. which in turn depended on approval of the President. As a result of this delay, pressures were mounting on both sides of the border for pre-building the southern section of the pipeline system to allow export of Canadian gas ahead of completion of the main project. The federal government was not disposed towards pre-building, and approval of new gas exports, without some specific commitments relative to repayment of those gas exports as worked out between exporters and importers on a commercial basis.

TransCanada
PipeLine plans
for Quebec
market expansion

In April, TransCanada PipeLines Limited filed an application with the National Energy Board to expand its natural gas transmission system eastward from Montreal to Trois Rivières and Bécancour. At the same time, it was making plans to extend its pipeline farther east to Quebec City, south to the eastern townships, and north to industrial areas including Shawinigan. The availability of natural gas in Quebec began when TransCanada completed its pipeline facilities in the vicinity of Montreal and the first gas from western Canada began to flow through the system in 1958. In the following 20 years, the company had experienced continuing difficulties in establishing a proper equilibrium between availability of gas supply, pipeline capacity, and market demand, and consequently its service had not been extended beyond Montreal.

PAA Act passed

An Act to amend the Petroleum Administration Act and the Energy Supplies Emergency Act received Royal Assent on April 20, making provision for the equivalent of international prices for selected domestic oil production,

and for the change in the name of the Energy Supplies Allocation Board in relation to oil import compensation matters to the Petroleum Compensation Board. The amendment of the PAA provided for a charge on domestic and imported petroleum in order to make the international price available to Syncrude and other high-cost Canadian crudes - the Syncrude Levy. It also established a special compensation provision for cases of "undue financial hardship".

**Budget
incentives for
non-conventional
oil based on
requirements
forecast**

The budget brought down in April, and certain non-budgetary measures, provided a total federal package aimed at bringing on additional supplies of non-conventional oil. For mining projects of the Athabasca oil sands type, international prices were available for synthetic oil and development expenditures could be written off against income from other operations, while the operation could be treated as a new mine with related incentives. In addition, the limit of writing off depletion had been doubled, with the write-off being allowed against all income. For in-situ projects, such as Cold Lake, the new budget provided for a special depletion and other incentives. Similarly, special incentive provisions were made available for heavy oil projects and for tertiary recovery projects. The total incentive package for oil development included in the budget represented one of the more important budgetary initiatives in respect of energy in several years and was considered of particular importance in view of the expected decline in conventional oil production to less than 700,000 barrels a day in 1990 from the 1977 level of 1.4 million b/d, indicating that over 700,000 b/d of tar sands and heavy oil would be required by 1990.

**International
Energy Agency
(IEA)**

In April, the Governing Board of the IEA met in Tokyo, continuing the procedure of meeting periodically at the senior level, while the various Standing Groups continued their active programs which had been initiated with the establishment of the IEA in 1974 (see note for November 1974). Canada is represented in all Standing Groups and has provided extensive support to IEA objectives and programs since the signing of the "Agreement on an International Energy Program" in November 1974. In 1978, considerable attention was being given by the 19 member countries towards achieving the Group Objective of limiting oil imports to 26 million barrels per day by 1985, as had been agreed to at the Governing Board meeting at the ministerial level in October 1977. Much of the work of the IEA is recorded in annual reports which include reviews of national energy programs as conducted in the Standing Group on Long Term Cooperation (SLT). By 1978 the Standing Group on Emergency Questions (SEQ) had produced an Emergency Management Manual describing in detail the operation of the Emergency Oil Sharing System, and had conducted a world-wide test of IEA's emergency oil sharing program. The Standing Group on the Oil Market (SOM) had developed and implemented reporting systems relating to crude oil and product import prices for IEA countries, and other statistical reporting systems, and was also engaged in long-term market analysis. The Committee for Research and Development (CRD) was established to achieve cooperation

among member countries in the introduction and use of new technologies directed to the resolution of energy production, conservation and use problems. Canada's active participation in the IEA in the 1970s was considerably strengthening its links with the international energy economy.

NEB inquiry into oil supply and demand outlook

In May, the National Energy Board commenced a public inquiry, which extended into June, in response to a January 16, 1978 request of the Minister of EMR that the Board report on a range of oil supply situations that might occur over the following 10 to 15 years and the import dependency that might develop for B.C. consumers as well as for eastern Canadians. When the Board commenced its hearings, the submissions that had been received included projections of lower oil demand and higher oil supply than in submissions made to a 1976 hearing. Oil import projections were correspondingly reduced. Projections of production from the oil sands indicated that it would not exceed 800,000 to 950,000 b/d by 1995, compared with an earlier target of 1 million b/d by 1990. There was strong support for the continued export of conventional heavy oil and some concern on the part of heavy oil producers that the netback could be less from an upgrading plant than from existing markets. The Board reported on its findings in September (see notes for that month).

Crude oil price increase and the Syncrude levy.

The third of four scheduled domestic crude oil price increases was announced by the Minister of EMR on June 30. The \$1.00 increase brought the price of an average barrel to \$12.75, while a barrel of imported crude oil of the same quality landed at Montreal cost about \$16.00. The four scheduled price increases, to take place every six months, had stemmed from understandings reached in the May 1977 Federal-Provincial Energy Ministers' meeting and were subsequently embodied in a Federal-Alberta agreement. Also effective on July 1, 1978, was a levy (Syncrude levy) of 10¢ per barrel to be charged to all users of domestic or imported crude and most imported petroleum products, with this revenue to be used to fulfill the government's guarantee of the world price for the output of synthetic crude oil from the new Syncrude oil sands plant, scheduled to start operations in the third quarter of 1978. The government also commenced subsidizing the differential in the Toronto and Montreal oil prices, at a \$16 million annual cost to permit the continued equalization of crude oil costs at Toronto and Montreal. In addition, two rates of compensation were established for Canadian ports and Montreal, with the former having a fixed proxy of a 15 cents per barrel advantage.

New energy conservation building code

The development of a "Canadian Code for Energy Conservation in New Buildings" was completed in June. The code contains thermal efficiency standards based on economic and technical criteria developed by the National Research Council for varying climates, defined in degree days.

Saskatchewan Cluff Lake inquiry favours uranium mining

The Cluff Lake Board of Inquiry's final report was released in June. As result of its findings, which were favourable to uranium mining, the Saskatchewan government indicated that the first phase of the Cluff Lake mining

project could proceed, with completion scheduled for mid-1980 at a cost of \$130 million. The operation was to be subject to strict occupational, health, safety and environmental regulation.

Ontario-federal
agreement on
radioactive
waste management

An agreement was reached between the federal and Ontario governments in June on Radioactive Waste Management. The agreement enabled geological field work for verification of the concept of deep underground disposal in igneous rocks to be initiated. The first phase of the work was scheduled to be completed in three years and, if successful, would be followed by selection of a site for a demonstration mine.

Petroleum
Corporations
Monitoring Act

The Petroleum Corporations Monitoring Act received Royal Assent on June 30, as "An Act to require the reporting of certain financial and other statistics relating to the affairs of certain petroleum companies carrying on business in Canada".

Uranium and
Thorium Mining
Review
legislation

On June 29, the Minister of EMR introduced the Uranium and Thorium Mining Review Bill (Bill C-64) in Parliament. The proposed legislation drew heavily on policy principles limiting foreign ownership in the uranium industry that were first announced by the Prime Minister on March 2, 1970 directed towards the objective of at least 50% Canadian ownership in major resource industries. The bill provided for tests concerning ownership related to shares held by non-residents; three quarters of the company directors to be Canadians; and certain limits on the holding of working interests by non-residents. In cases where the level of foreign ownership in an applicant company met the second and third tests, if foreign ownership exceeded 33% but not 50% and the applicant was able to demonstrate that it was not a non-eligible person for purposes of the Foreign Investment Review Act (i.e. was able to demonstrate that it was Canadian-controlled), then the applicant was to be deemed to be a qualified applicant and eligible to produce uranium in Canada. This legislation had its origin in a proposed take-over of Denison Mines Limited by a foreign-owned company early in 1970. A draft Bill had been completed in 1971 but had subsequently been extensively revised. (Bill C-64 died on the Order Paper when the Session ended in October 1978).

Tenneco LNG
import proposal

In June, the NEB extended by one year the approval, given in December 1977, to the Tenneco LNG Project on a proposal to import liquified natural gas from Algeria to Saint John, N.B. and export it to the U.S. The project was held up pending approval of imports into the U.S. and further progress on the proposal depended on U.S. regulatory approval. However, the proposal was rejected by the U.S. Energy Regulatory Administration on December 18, 1978.

World oil
supply/demand
outlook

In June, Sheikh Yamani, Saudi Arabia oil minister visited Canada and in the course of his visit expressed views then held in the Middle East regarding the long-term oil outlook. The 1978 oversupply of oil was forecast to end within two years, to be followed by a period of supply-demand balance until about 1988, when a shortage

would ensue. Unless there were orderly and gradual price increases during the period 1978-1988, a price explosion would occur with the onset of petroleum shortages in 1988 which, in turn, would cause severe economic hardship and difficulties. In the year following this prediction, the OPEC price more than doubled with the onset of the Iranian crisis and related short-term oil shortages. The supply situation moved into a surplus position in the early to mid-1980s and the price gradually declined in real terms rather than gradually increasing. In terms of the views held in 1978, the trend in the 1980s could lead to an even more severe price and supply adjustment in the late 1980s than had been foreseen in 1978.

**\$380 million
renewable energy
program**

On July 4, the Minister of EMR announced that the government would spend \$380 million over the following 5 years on programs to develop renewable energy with the objective of creating a strong Canadian industry in the manufacture of solar heating systems, encouraging the use of wood as a source of energy in the forest industries, and promoting the use of other renewable energy sources. Under the Purchase and Use of the Solar Heating Program (PUSH), \$125 million was to be made available in the period 1979-84 for the preferential purchase of Canadian-made solar space and water heating equipment for new federal buildings. Under the Program of Assistance to Solar Energy Manufacturers (PASEM) grants of up to \$10,000 were to be awarded to firms to prepare solar equipment design proposals and contributions of \$200,000-\$300,000 were to be made to assist firms to develop solar equipment. Under the Low Energy Building Design Awards (LEBDA), awards were available to winners of national competitions to encourage more energy-efficient building designs for residential and commercial buildings. Over the following 5 years, \$114 million was to be allocated to cost-sharing agreements with provinces and the private sector for the demonstration of new technologies in the renewable and conservation areas. Under the Forest Industry Renewable Energy Program (FIRE), the federal government was committed to provide \$143 million in the period 1978-85 for the forest industry to use wood wastes as a fuel source instead of oil and gas. This would include federal contributions of up to 20% of the capital cost of certain kinds of equipment in the forest industry to get the energy content out of wood wastes. In addition, federal guarantees for loans, worth a total of \$150 million, were designed to assist in establishing electrical generating facilities using biomass as the energy source. Under the Expanded Research Development and Demonstration for Forest Biomass Energy Program (ENFOR), \$40 million was to be available in the period 1978-84 in support of research projects and demonstrations of innovative technique such as biomass plantations and the conversion of biomass to liquid fuels or chemicals.

**Canada-B.C. Coal
Subsidiary
Agreement**

By July, several programs funded under the Canada-British Columbia Coal Subsidiary Agreement of 1977 were nearing completion. Under that Agreement, the federal government undertook to share jointly with B.C. up to \$10 million for studies to evaluate the proposed northeast coal and related developments. The studies included a

program for more accurate coal resources appraisals and more complete estimates of the overall costs and benefits of the proposed regional coal development program in northeast B.C. preparatory to a decision in the early 1980s as to whether it should proceed.

Gas/oil price
ratio remains
at 85%

On August 1, a new Federal-Alberta gas pricing agreement was announced which provided that the ratio of natural gas to crude oil prices would be maintained at the existing 85% for 1 year, effective August 1, 1978. Following the \$1.00 a barrel crude oil price increase in July, this raised the new wholesale price of natural gas in Toronto to \$2 per million Btu's from \$1.85

Syncrude in
production

In August, Syncrude Canada Limited's oil sands plant came on stream, with an initial production of 9,540 cubic metres per day and a design capacity of 20,000 cubic metres per day, scheduled to be reached in 1982. The Syncrude property had been under development since the late 1960's but it was not until February 1975 that its future was assured. At that time, the Governments of Canada, Alberta and Ontario reached an agreement with the three private participants of Syncrude to form a new partnership to continue to build and to operate the plant,.

LaPrade to
be mothballed

In August, the federal government announced that in order to save an expenditure of \$150 million in fiscal 1979-80, it would proceed immediately to negotiate with the Province of Quebec on the mothballing of the LaPrade Heavy water plant. The plant could then be brought into service at a later time when its output was needed. LaPrade had been under construction since 1974.

Pause in
upward movement
of oil and gas
prices

On August 25, the Minister of EMR announced that he and the Minister of Finance would be contacting Ministers of oil producing provinces to seek their agreement on the need for a pause in the upward movement of oil and gas prices that had been scheduled for January 1, 1979. They would also be proposing that natural gas prices be allowed to find their appropriate level in the market place within a defined range. It was estimated that the previously scheduled oil price increase of \$1.00 a barrel for January 1, 1979 would exceed the limitation set in the June 1977 agreement, namely the average price of crude oil in the Chicago area. With the increase in natural gas reserves in the previous two or three years, greater amounts were available for the domestic market but the price relationships of natural gas to crude oil (85%) had been acting as a constraint on gas sales in eastern markets, hence the need to free-up the price.

Thunder Bay coal
coal terminal
opens

In September, the new Thunder Bay, Ontario, coal terminal opened, completing the final link of an upgraded west-to-east coal transportation system. The new terminal had been constructed to facilitate the use of western Canada coal in central Canada, thereby contributing to Canada's energy self-reliance. The initial capacity was 3 million tonnes a year with provision for increasing it to 6 million tonnes. It was expected that coal deliveries to central Canada from the West would reach the 4 million tonne level in the early 1980s.

1977 Petroleum
Monitoring
Survey

The results of the 1977 monitoring survey of Canadian petroleum corporations were announced in September. The companies surveyed accounted for 80% of total Canadian crude oil production and, in 1977, their internal cash generation increased by 24% from \$3.1 billion in 1976 to \$3.8 billion in 1977 while total capital expenditures rose by 36.6% from \$2.3 billion to \$3.2 billion. Total exploration and development expenditures in 1977 were \$2.3 billion, an increase of \$710 million over 1976, the growth in industry activity reflecting increases in the domestic wellhead price of oil and gas. This and previous surveys were based mainly on information provided voluntarily by the petroleum corporations. With the passing of the Petroleum Corporations Monitoring Act in June 1978 (see June note), the filing of financial and other statistical data became mandatory.

EMR
organizational
changes

In September, organizational changes relative to EMR'S energy policy function were announced. The Economic and Policy Analysis Sector was established and the Energy Sector was reorganized in terms of three new branches: the Conservation and Renewable Energy Branch; the Petroleum Branch; and the Electrical, Coal, Uranium and Nuclear Energy Branch. The strengthened capacity for economic analysis in the new Economic and Policy Analysis Sector was designed to complement the policy and technical expertise in other sectors of the Department.

NEB report on
Oil Supply and
Requirements-
demand down,
supply outlook
improved

The Natural Energy Board published in September the findings of its investigation into oil supply and demand in response to the January 16, 1978 request of the Minister of EMR that it report on a range of possible oil supply situations that might occur over the following 10-15 years and the import dependence that might develop in Canada (see May note). The report "Canada Oil Supply and Requirements, September 1978" concluded that it should not be necessary to increase the capacity of existing oil importing facilities during the forecast period ending in 1995. This was a change from the views the Board expressed in its February 1977 oil report that it was likely that refineries west of the Ottawa Valley would need imported oil in the 1980s. The changed outlook reflected a lower than previously anticipated increase in demand as well as an improved supply forecast, particularly in oil sands development. Instead of oil deliveries to Montreal needing to be phased down because of declining supply in western Canada, it was estimated that deliveries at the 315,000 b/d level could be maintained until 1983 and then only phased down gradually to 100,000 b/d by 1995.

Offshore
jurisdictional
issues

In September, Nova Scotia repudiated the Memorandum of Understanding that had been signed by the Maritime provinces and the federal government in February 1977, and asked that the offshore question be part of a constitutional review. During the period October 1978 - February 1979 the question of offshore resources jurisdiction was on the agenda of constitutional discussions.

The Northern Tier
oil supply
problem

While the NEB report, completed in September, indicated that no new port facilities would be required to serve domestic oil needs in the foreseeable future, Canadian exports to Northern Tier refineries in the U.S. midwest had been steadily reduced since the decision was taken in 1974 to phase out oil exports by 1981. By September they had been reduced to the level of about 55,000 b/d and the issue of oil supply to the Northern Tier refineries had loomed large in Canada/US relations since 1974. Oil exchanges between the two countries had helped considerably but other alternatives, such as transporting Alaskan oil to the U.S. midwest, had been unsuccessful because of the reluctance, for environmental and other reasons, of U.S. ports to accept Alaskan and other crude oil for trans-shipment inland. The establishment of an oil port at Kitimat on the B.C. coast had been similarly ruled out. A proposed U.S. port in Puget Sound and a Northern Tier Pipeline had been confronted with many difficulties. Northern Tier supply remained a problem for Canada because refineries had been originally tied to supplies from Canada and, while the cutback was gradual, no solutions additional to oil exchanges had emerged. In the oil exchange process, Canada increased its deliveries to the Northern Tier above planned levels in proportion to quantities of replacement U.S. oil delivered to eastern Canada refineries.

IPACE report on
a national
electrical grid

In October, the Interprovincial Advisory Committee on Energy (IPACE) completed a study of a national grid entitled "An Evaluation of Strengthened Interprovincial Interconnections of Electric Power System", which constituted a further review of the national grid proposal which had been examined in a joint federal-provincial study in 1968. At that time, it was concluded that, while a national grid was not economic, encouragement should be given to the expansion of regional interconnections as economic and technical opportunity dictated. In the intervening years, there had been substantial reinforcement of interprovincial connections between electrical utilities including stronger ties between Manitoba and Saskatchewan, the completion of the east-west interconnection in Ontario, the direct interconnection between New Brunswick and Quebec, and the submarine cable interconnection between Prince Edward Island and the mainland. There had also been reinforcement of ties between New Brunswick and Nova Scotia and the construction of a transmission system from Labrador to the Quebec system in connection with the Churchill Falls development. With those projects in place, the only gaps that existed in a national interconnection were those between Alberta and Saskatchewan, and the gap between Labrador and the Island of Newfoundland. The IPACE report of October 1978 concluded that the costs of a major overlay to the existing and planned systems would not produce commensurate benefits but that continued consideration should be given to improving transmission ties as circumstances and economics dictated.

NEB natural
gas supply and
requirements
inquiry

In October, the National Energy Board commenced a hearing concerned with an appraisal of the supply of gas in relation to reasonably foreseeable requirements for use in Canada and for authorized exports. The appraisal was made because of changing circumstances as to supply, price and

markets in the natural gas industry, and also because the NEB felt it was timely in the light of possible applications for licenses to export natural gas, to re-examine its procedures for determining the surplus of natural gas. Plans for the hearing were made early in 1978 and the hearing, scheduled to commence in October, was announced in April. Hearings were held in several cities across Canada in the period October 11-December 4, and the Board published its finding in a report dated February 1979 (see note for that month of 1979). In its 1975 report "Canadian Natural Gas Supply and Requirements", the Board had set forth certain general principles respecting surplus calculation procedures. In its 1978 hearing, it invited submissions on specific surplus calculation procedures which would embody as many as possible of the aspects of the principles set forth in the 1975 report. While this inquiry was not established to consider specific applications, it was the intent to determine the extent to which reserves and deliverability of gas exceeded foreseeable requirements for gas in Canada and authorized exports. Such surplus determination would form the basis for considering specific export applications in subsequent proceedings.

**Q&M PipeLine
proposal for
eastern gas
markets**

Q&M Pipe Lines Limited filed an application before the NEB in October to extend natural gas service to markets east of Montreal which was in line with the federal government's objective to see more Canadian gas used in eastern Canada to replace oil imports. At the same time, there was a developing surplus of gas deliverability in western Canada, and producing companies were pressing for export approval but the federal government was awaiting the results of the NEB natural gas supply and requirements examination, noted above.

**Speech from
the Throne**

In the Speech from the Throne on October 11, at the commencement of the Fourth Session of the Thirtieth Parliament, the Government set a priority on industrial expansion in the context of budgetary restraint. In the area of economic development, it emphasized industrial innovation and reaffirmed initiatives in the April budget including measures to stimulate non-conventional oil development. Emphasis was also given to measures announced during June and July to encourage energy conservation and the development of renewable energy sources.

**Nuclear Control
and Administra-
tion Bill C-14
and Uranium and
Thorium Mining
Review Bill C-64**

The Nuclear Control and Administration Bill C-14, and the Uranium and Thorium Mining Review Bill C-64, died on the Order Paper in October. Bill C-14 had been tabled for first reading in the House of Commons on November 24, 1977. Its purpose was primarily to replace the existing Atomic Energy Control Act with a strengthened legislative vehicle to take account of the developments in the uranium and nuclear energy fields that had occurred since the Atomic Energy Control Board had been established in 1946 under the Atomic Energy Control Act. Bill C-64 had been tabled for first reading on June 29, 1978 (see note for June on that Bill). It was the first expression in potential legislation form of the policies announced in 1970 by the government restricting foreign ownership in the Canadian uranium industry. The provinces had opposed the

legislation proposed by the two Bills on the grounds of two principles, as expressed at a November 1978 Mines Ministers' Conference: the provinces should have sole jurisdiction and responsibility for the management of resources, including all aspects relating to uranium exploration, mining, and milling; and they should have sole jurisdiction and responsibility for the protection of workers. The first principle would undermine Bill C-64 which was based on the issuance by the federal government of an extraction permit to be effective at the mining stage. The second principle would undercut the provision of Bill C-14 relative to the prime responsibility of the proposed federal Nuclear Control Board for health, safety, security, safeguards and environmental control. By the mid-1980s neither Bill had been re-introduced in Parliament.

**AECEB report
on radioactive
waste management
criteria**

In October, the Atomic Energy Control Board completed a report "The Regulatory Role in the Disposal of Radioactive Waste in Bedrock", further to its January 1974 report "Guide for Licensing of Radioactive Water Management Facilities", and its July 1975 report "Regulating the Management of Radioactive Wastes in Canada". These reports provide an important record of the Board's development in the 1970s of radioactive waste management criteria.

**First Ministers'
Conference on
the Economy-
energy
conclusions**

At a conference of First Ministers, held on November 27-29, discussion of a number of energy matters took place. Ministers agreed on the importance of developing new gas markets east of Alberta. To this end, they recognized the need for the rationalization of refinery surplus capacity in Eastern Canada and equitable treatment of gas relative to other energy forms. A decision was taken to establish a federal government-Alberta task force, with provision for consultation with other interested provinces, to identify mechanisms to achieve gas market expansion. Ministers stressed the importance to all regions of the country of greater energy self-reliance and the early development of major energy projects especially relative to heavy oil, oil sands and hydroelectric power. Emphasis was also given to the importance of energy conservation programs and the development of renewable energy sources. Ministers noted in particular the benefits which energy development has for job creation and improving the balance of payments.

**Lower Churchill
Development
Corporation
established**

In November the federal and Newfoundland governments announced that they had signed an agreement that provided for the incorporation and joint federal-provincial funding of the Lower Churchill Development Corporation. The first objective of the Corporation was to finalize the investigation of the hydroelectric potential of the Lower Churchill River in Labrador, involving evaluation of both the Gull Island and Muskrat Falls sites, related transmission facilities, marketing prospects, and methods of long-term debt financing. Studies relative to the objective of supplying electrical energy from the Lower Churchill to the Island of Newfoundland had been conducted from time to time since 1965. A detailed evaluation of the Gull Island project by a joint Federal-Provincial Task Force, updated to December 1974, had indicated Gull Island

development to be the lowest-cost solution to meeting the expected growth in demand for electrical energy in Newfoundland. Further studies led to the agreement of November 1978. The agreement provided that, should the Lower Churchill Project proceed, Newfoundland and Canada would maintain their respective 51/49 equity positions in the Corporation. It was estimated that development of the Gull Island site would cost about \$3 billion, of which 10% (about \$300 million) would be provided through equity financing. Canada would contribute about \$150 million for its equity position. Newfoundland would contribute \$75 million in cash, acquiring the balance of its equity by transferring its existing Gull Island assets to the Corporation. Newfoundland had a right to acquire the federal government's shares at any time.

June 1977 oil
price agreement
extended to
June 1980 -
Energy
Ministers'
Conference

In November, there was a meeting of federal and provincial Energy Ministers (Nov. 16) and a First Minister's conference on the Economy (Nov. 27-29). At the Energy Ministers' Conference, all of the provinces supported, with varying degrees of enthusiasm, Alberta's position that if there was "headroom" relative to the Chicago price "ceiling" for a January 1, 1979 crude oil price increase, then that increase should take place regardless of the national economic impact. The federal government was concerned about the impact of an increase on inflation (about 0.7% on the CPI for each \$1 per barrel increase) and other economic effects. Prior to the First Ministers' Conference, federal and Alberta Ministers of Energy reached an agreement to extend the June 1977 pricing agreement through to the end of June 1980, to forego the January 1, 1979 increase, and to provide, under certain conditions, for increases of \$1 per barrel on July 1, 1979 and January 1, 1980. On gas pricing, it was agreed that Alberta would make gas available at an incentive price established from time to time in new markets east of Alberta, with the incentive price being rolled-in at the Alberta border so that all producers continued to receive a "single-price".

Great Canadian
Oil Sands plant
expansion

In November, it was announced that Great Canadian Oil Sands Limited (GCOS) had committed to expand the capacity of its oil sands plant at Fort McMurray, Alberta, by 13,000 barrels per day, at a cost of \$185 million. In 1977 the plant had operated at an average capacity of 45,000 b/d. GCOS was to be given access to world prices for its output, a price incentive considered necessary to develop Canada's high-cost non-conventional oil resources. GCOS had commenced production in 1968. This incentive became effective in April 1979.

Alcan gas
pipeline pricing
provisions

The main event in the United States in 1978 relative to the Canada-U.S. proposal to construct the Alaska Highway natural gas pipeline (Alcan Pipeline) for delivery of Prudhoe Bay gas to U.S. markets, and the later delivery of Mackenzie Delta gas to Canadian markets, was the President's signing in to law on November 9 The U.S. National Energy Plan, with Alaska gas pricing provisions. This followed enactment by Congress on October 17 of the

U.S. President's Energy Bill, including provisions for setting of producer prices of Alaska natural gas and also making provision for the gas to be priced on a "rolled-in" basis to encourage its marketability in the lower 48 States.

Increased
Canadian
ownership and
control

An analysis of Canadian ownership and control of the petroleum industry conducted on the basis of data available to December showed that Canadians owned an estimated 34.5% of industry assets, up from 24.1% in 1972. Assets under Canadian control were an estimated 24.5% in 1978 compared with 10.3% in 1972.

Bruce A nuclear
station
completed in
Ontario's
nuclear program

By December, the third and fourth Units of the Bruce A nuclear generating station, near Kincardine, Ontario, had begun operations. The Unit 2 reactor of the Bruce Station went critical on July 28, 1976, with Unit 1 being commissioned in 1977. With all four Units in operation in 1979, the Bruce A was one of the largest operating nuclear stations in the world, having a capacity of 3000 megawatts. In 1978, the other nuclear power reactors in Ontario were the Nuclear Power Demonstration Unit - 25 MWe, operational in 1962; the Douglas Point Station - 200 MWe, operational in 1966; and Pickering A, Units 1 and 2, operational in 1971, and Units 3 and 4 in 1972-3, with a total capacity at Pickering of 2000 MWe. Pickering B was ordered in 1974, designed for four 500 MWe units, and started up in 1982. Bruce A was approved in 1969 and construction began in the same year. Bruce B was approved in 1975, with operation scheduled for the mid to late 1980s. Gentilly 2 in Quebec and Point Lepreau in N.B. were each designed at 600 MWe and had a 1982 start-up.

Post Anti-
Inflation Pro-
gram oil price
administration,
and review
of oil price
controls

On December 22 the Minister of EMR issued a communiqué indicating the extent to which the government would be involved in oil pricing and monitoring in the post-Anti-Inflation era, effective January 1, 1979. The communiqué reflected a consensus of provincial views, as expressed by Energy Ministers in a meeting held in November, for less interference by governments in industry. Under the Anti-Inflation program, which had been implemented on October 14, 1975, oil companies could only make upward adjustments in their posted prices in terms of increased crude oil costs announced by the Minister of EMR and non-crude cost increases as approved by the Anti-Inflation Board. With the termination of the Anti-Inflation Program at the end of 1978, the federal government no longer administered the flow-through of non-crude cost increases to producer prices, or set price level guidelines for petroleum products obtained from imported petroleum, but it continued to regulate both the wellhead crude oil price as well as the resulting flow-through to oil product prices of wellhead increases. The federal government, with the support of the provinces, also continued to maintain a system for monitoring the industry's pricing performance and cost experience, with industry continuing to provide cost and price information to EMR, but the December 22 communiqué in essence freed the petroleum industry from both product price level control, as well as the control over the flow-through of non-crude costs to product prices. Termination of the Anti-Inflation program marked the end of the third phase of federal oil

product price controls since 1973. During the first phase, September-December 1973, a "voluntary freeze" on the prices of automotive fuels and heating oil was maintained as part of the cost of living measures announced on September 4, 1973. During the period January 1974 - October, 1975, the second phase, mandatory control under the Oil Import Compensation Program was maintained; and compliance with federal oil product price guidelines was made a condition of eligibility for oil import compensation. Full recovery was allowed of industry-wide crude cost increases occurring at April 1, 1974 and July 1, 1975, with a 45-day inventory-related "lag". The third phase was one of mandatory price control under the Anti-Inflation Program, October 14, 1975 - December 31, 1978, as noted above.

Oil price
inquiries
- provincial

December marked the completion of another year of oil price inquiries at the provincial government level. In 1978, the B.C. Energy Commission completed its inquiry into oil and gasoline pricing in the province. Earlier inquiries had included those of the Royal Commission on Gasoline Price Structure in British Columbia in 1966, the Royal Commission on the Price Structure of Gasoline and Diesel Oil in Nova Scotia in 1968, the McKenzie inquiry into gasoline marketing in Alberta in 1968, and the Royal Commission on Petroleum Products Pricing in Ontario in 1976. Later inquiries included the Task Force on Fuel Prices in Quebec in 1985. None of these provincial inquiries was as broad ranging as the Combines Investigation inquiry initiated at the federal level in February 1973 followed by the Restrictive Trade Practices Commission examination which was completed in 1986 (see note for February 1973).

THE YEAR 1979

Arctic Islands
natural gas
- no progress

The Arctic Pilot Project, a joint undertaking of Petro-Canada, Alberta Gas Trunk Line Company Ltd., and Melville Shipping Ltd., a Montreal consortium of three shipping companies, filed an application in January with the NEB for export of liquified natural gas (LNG) from Melville Island in the Arctic Islands. The \$1.5 billion project was designed to transport LNG to a terminal in the Maritimes or Quebec using two Arctic Class VII icebreaker LNG tankers. The Polar Gas consortium was proposing to take delivery of Melville Island gas by constructing a pipeline under McClure Strait to Victoria Island and to the mainland near Coppermine, N.W.T. Exploration for gas and oil had been underway in the Arctic Islands for many years, the first deep exploratory well having been drilled in 1961 and the first gas discovery was made in 1969. In the mid-1980s, 25 years after the first well was drilled, proposals to market Arctic Islands gas were in abeyance but a test shipment by tanker was made of Arctic crude oil in the summer of 1985 from the Bent Horn field on Cameron Island to Montreal, a distance of 3100 miles.

Canada Oil & Gas
Drilling
Regulations

New regulations to govern the drilling for oil and gas on lands under federal jurisdiction were approved in January under the title of Canada Oil and Gas Drilling Regulations. They specify standards in equipment and procedures that must be met in conducting drilling operations in the Northwest Territories, Yukon, and all Canadian offshore areas. Over 1,060 wells had been drilled in the search for oil and gas on federal lands to the end of 1978, 183 being offshore wells.

Maritime Energy
Corporation

On February 16, the Minister of Energy, Mines and Resources and the three Maritime Premiers signed a Memorandum of Understanding concerning the development of the Maritime Energy Corporation (MEC). The MEC was being established to carry out regional planning of the generation and bulk transmission system supplying the three Maritime Provinces, and to finance and build projects and assume responsibilities related to regional generating stations and associated transmission systems. It was agreed that the Point Lepreau nuclear unit would be purchased from the N.B. Electric Power Commission by the MEC as its first major project. It was also agreed in principle that any additional work on major Fundy tidal projects should be carried out through the MEC. Specific arrangements for the participation of Canada, N.B., N.S. and P.E.I were defined in the Memorandum of Understanding. Subsidiary agreements were listed in the document, to be completed and signed by the appropriate parties as soon as possible, including power contracts, a performance loan agreement, and a planning agreement. The Memorandum of Understanding confirmed the objectives as set out in the Agreement of June 21, 1977 relative to studies on the establishment, nature and structure of the MEC. It also followed from the acceptance in February 1978, by the four governments, of the principle of establishing the MEC.

Energy Supplies
Emergency Act,
1979

The Energy Supplies Emergency Bill, 1979 was introduced in the House of Commons in February. The Bill was designed to provide the Government with authority to allocate energy resources within Canada during periods of supply disruption caused by shortages or market conditions outside domestic control. The authority contained in the Bill was of a stand-by nature. A specific decision would be taken by the Cabinet to involve the emergency authority and establish administrative machinery. The Bill, as introduced in February 1979, was essentially the same as the Energy Supplies Emergency Act, 1974, which was legislated in response to the Arab oil embargo of late 1973 and early 1974. The earlier Act had a legislated duration of two and one-half years and expired on June 30, 1976. At the time the 1979 Bill was introduced, the world was faced with the Iranian oil crisis which resulted in that country's oil exports being cut off in December 1978. Canada had been getting 100,000 barrels a day of crude oil from Iran, one-fifth of total oil imports into this country. Alternate supply arrangements were being made but the new legislation was being put in place in the event of future disruptions. The Energy Supplies Emergency Act received Royal Assent on March 26, 1979.

Iranian oil
crisis - actions
by Canada

An appraisal made in mid-February, by the federal government, of Canada's oil supply situation indicated that while the supply outlook was serious it was manageable. Alberta crude oil production had been increased to a maximum and the extension of the Interprovincial Pipe Line system to Montreal, completed in 1976, had resulted in a cut in direct import dependency by 300,000 barrels a day. Of the 500,000 barrels daily of imports still being required in 1979, 200,000 b/d were coming from Venezuela. Oil exchanges with the U.S. provided a further means of alleviating the eastern Canada oil supply situation. The diversion of 25,000 barrels a day of Venezuelan crude, by EXXON, from Canada to another offshore market became an issue of some importance at the height of the Iranian crisis and Petro-Canada commenced state-to-state negotiations with Venezuela's state oil company, Petro-Ven, for crude oil supplies. At the same time, the Government was in negotiation with Mexico and Venezuela for energy agreements, including oil supply contracts. However, an agreement with Mexico was not completed until mid-1980 but Venezuela was able to maintain its customary supply of some 200,000 b/d.

Northern Tier
transportation
alternatives
for oil supply

An Aide-Memoire delivered by the U.S. Government to the Government of Canada on February 28 advised of the enactment of legislation empowering the President to approve a delivery system to transport Alaskan and other crude oil to the Northern Tier and other mid-west areas of the U.S. which were facing restricted crude oil supplies. The legislation, Title V of the U.S. Public Utilities Regulatory Act of 1978, provided a mechanism for the President to decide which, if any, of the competing applications for a crude oil transportation system should be approved. Four companies had applied to the U.S. Secretary of the Interior: Northern Tier Pipeline Company

(a pipeline from Port Angeles, Wash. to Clearbrook, Minn.); Kitimat Pipeline Ltd (a pipeline from Kitimat, B.C. to Edmonton); Northeast Energy Company (a pipeline from Skagway, Alaska, to Edmonton); and Trans Mountain Pipe Line Company (a pipeline from Cherry Point, Wash. to Edmonton -- a loop on the existing line but moving oil in the opposite direction). The U.S. Government wished to give full consideration to the three trans-Canadian options and requested views and preferences from Canada by October 26, 1979. The Northern Tier oil supply situation had been an issue since 1975 when Canada decided it would have to begin to phase out crude oil supplies to Northern Tier refineries because of the declining oil resources in Western Canada. Oil exchanges with the U.S. had been initiated to lessen the impact of cut-backs.

**"Energy Futures
for Canadians"
report**

A report entitled "Energy Futures for Canadians", a long-term assessment to the years 2000 and 2025, was released in February. The study was prepared for the Department of Energy, Mines and Resources and published as a contribution to the public discussion of energy issues. The study recommended reduction in Canada's reliance on imported oil and replacing it with Canadian oil, natural gas, coal, nuclear power, hydro power and renewable energy resources. The report forecast that total reliance on oil would be reduced and that the rate of growth in energy demand would be significantly lower than in the previous 25 years. A National Energy Program was proposed with prescribed quantitative targets and specific programs in support of 5 policy elements relating to energy supply, use, price, economic benefit, and a comprehensive information program to enlist public support. The study also provided a world energy perspective.

**NEB report
"Canadian
Natural Gas
Supply &
Requirements"**

In February, the National Energy Board published its report "Canadian Natural Gas Supply & Requirements." In April 1978 it had announced that a public inquiry would be held commencing in October 1978, and it had conducted hearings in several centres across Canada in the period October 11-December 4 and received written briefs. The purpose of the inquiry was to examine gas supply and demand and to review procedures for calculating surplus. In its 1975 Gas Report, the Board had set forth certain general principles respecting surplus calculation, procedures (see July 1975 note). In its 1979 Report, it concluded that the determination of a surplus of natural gas should be made using three tests: a Current Deliverability Test, a Current Reserves Test, and a Future Deliverability Test. All three tests would have to be met before the Board would deem a surplus to exist. Any new exports that were dependent upon deliverability from established reserves plus reserve additions would be subject to interruption. As a result of this inquiry, the Board's estimate of remaining established reserves in conventional areas was 66.1 trillion cubic feet (tcf) at the end of 1978, 4.7 tcf more than estimated for the year-end in 1976. The NEB did not believe the established frontier reserves, forecast additions or deliverability from those reserves could be included in the calculation of deliverability and reserve tests until it was satisfied

a transmission system to link the reserves to markets would be constructed. After taking into consideration its demand forecasts, the Board found that surplus gas existed in the amount of about 2 tcf., and it concluded that supply could meet Canadian demand east of Alberta plus authorized exports until the end of 1992, compared with a period ending in 1983 as estimated in a report it had published two years earlier.

Offshore
jurisdiction
- federal
proposal

During the First Ministers' Conference on the Constitution, February 5-6, the Prime Minister tabled a draft federal proposal accepting the principle of concurrent legislative authority over the management of offshore resources, with federal paramountcy for some elements of the management regime and provincial paramountcy for others, but leaving aside the question of ownership. To give effect to the constitutional change contemplated, the proposal anticipated the design of complementary administrative arrangements as a means of assuring continued federal-provincial cooperation and consultation.

Continental energy
policy

In an address given on February 27, the Commissioner of the Northern Pipeline Agency stated: "From time to time there has been talk of a continental energy policy. Back in the 50's and 60's one could hear this kind of talk in Canada from those who thought it would be a good thing to be able to penetrate the protected markets of the United States by extending the protective cover to include Canada. This concept received a frosty reception from Canadian public opinion and political decision-makers who wanted to preserve greater freedom of action than would be found within a formal continental approach. It elicited very little response or support at that time on the other side of the border. In the 1970's, when supply shortages began to appear, the field was reversed. Prominent Americans found an integrated energy policy attractive. There is even less sympathy in Canada today for the formal continental approach than there was when energy was cheap and plentiful. Canadians are ready and willing to co-operate with Americans in dealing with common problems relating to energy. They hesitate to commit themselves to ill-defined general concepts that seem to imply a pooling of resources."

Fuel oil shortage
problems in
Iranian crisis

In March, the Minister of EMR expressed concern about difficulties in the supply of certain grades of fuel oil in parts of eastern Canada which had arisen as a result of the Iranian oil crisis compounded by serious operating problems at several refineries and abnormally cold weather. In addition to the overall shortage, there was also a problem of allocation of the scarce supplies and, as a result of claims by resellers that refiners had been taking advantage of the shortage, an investigation into the marketing practices for petroleum products was undertaken under the authority of the Petroleum Administration Act (see July note). In the area of foreign crude purchasing, the federal government had asked Imperial Oil Ltd. to deal directly with the national oil company of Venezuela,

Petro-Ven. However, Imperial advised in March that EXXON was not willing to permit its Canadian affiliate to make direct purchases. Accordingly, the government instructed Petro-Canada to open negotiations for a supply contract. The concerns in early 1979 about adequate foreign oil supplies had come just 5 years after the 1973-74 Arab oil embargo, both events being also characterized by sharp international oil price increases.

P.M.-President
statement on
Canada/U.S.
energy relations
- consultative
mechanism
established

Following a meeting on March 3, the Prime Minister and the President of the U.S. issued a joint communique in which they reaffirmed that enhanced bilateral cooperation in the field of energy would serve the interests of both countries and they also agreed that maximizing the supplies of domestic energy available to each country was a common and shared objective. It was further noted that the recent international event (Iranian oil crisis) had served to underline the vulnerability of the U.S. and Canada and other oil-consuming countries to oil supply and pricing disruptions. At this meeting, the President affirmed his government's strong commitment to the completion of the Northern Gas Pipeline. To enhance the close cooperation in bilateral energy matters, the two leaders agreed to establish a consultative mechanism at the sub-cabinet level which would meet periodically to consider options on operational issues.

AECEB Advisory
Committees
replaced

On April 1, the Advisory Committee system, which had been initiated in 1956, to advise the Atomic Energy Control Board on operational matters through the use of panels of outside part-time experts, was abolished and the establishment of five new advisory groups proceeded. The new groups were given the responsibility to advise on radiological protection, security, environmental protection, nuclear facility safety, and intergovernmental relations, with the emphasis on technical policy rather than operational procedures.

Canada's response
to IEA 5% energy
cutback proposal
- increased oil
supply, conser-
vation, CHIP

In April the Minister of EMR announced a three-part program in response to the call on March 2, 1979 from the International Energy Agency (IEA) for member countries to improve the international oil supply/demand balance through demand restraint and domestic production increase. The IEA objective was to reduce the total energy demand of the 20 countries by 5%, or about 2 million barrels per day, and thereby reduce the upward pressure on international oil prices that had been initiated by the Iranian oil crisis. The three-part Canadian response included increased domestic oil production to augment supplies to eastern Canada and to increase oil "swaps" with the U.S.; a voluntary oil conservation program to expand existing conservation measures directed to reducing the nation's oil demand by 3% within a year; and increased availability of home insulation grants through changes in CHIP, including changing the eligibility date from 1946 to 1961, allowing 100% of the cost of insulation up to \$350 per house and one third of the labour cost up to \$150.

Petroleum Corp.
Monitoring
Survey

In April, the results of the Canadian Petroleum Corporations Monitoring Survey for the first 6 months of 1978 were announced. The report included historical

information of the 31 corporations that had voluntarily participated in the survey, and the "expanded monitoring universe" data which covered all corporations that had reported since the enactment on June 30, 1978 of the Petroleum Corporations Monitoring Act. The high level of exploration and development that characterized the petroleum industry in 1977 continued during the first half of 1978, and the reinvestment ratio of capital expenditures as a percentage of internal cash generation increased to 90.5%.

Renewable energy program

In May, the Minister of EMR reported on the status of renewable energy development projects that had been announced as a \$380 million package on July 4, 1978. Under the Program of Assistance to Solar Manufacturers (PASEM), after a proposal phase, 10 companies had received contracts of \$300,000 each to design, test and market new solar equipment. Contracts were being awarded under the \$103 million Forest Industry Renewable Energy Program (FIRE). Under the Federal-Provincial Demonstration Project Agreements Program with a \$114 million budget over 5 years, agreements with 6 provinces were being completed for various renewable energy projects. Many proposals had been received under the Energy from the Forest Program (ENFOR) designed to foster research and demonstration projects of innovative techniques in the forest energy sector such as the conversion of biomass to liquid fuels, and 16 companies had received contracts. These and other programs were directed towards the goal of energy self-reliance while building up an indigenous Canadian technology and industry.

Polar Gas Project

In May, the Polar Gas Project filed socio-economic statements with the NEB and the Department of Indian and Northern Affairs, further to its application of December 21, 1977 to construct a natural gas pipeline system from the Arctic Islands to southern markets. The Group had completed an environmental statement in March 1978 as part of an on-going program to determine the feasibility of transporting Arctic Islands gas to market by pipeline. The Polar Gas Project was formed in late 1972 and throughout the 1970s conducted an extensive program of office studies, and field work in the Arctic Islands, with particular emphasis on pipelaying methods for channel crossings. By the mid-1980s, Polar Gas had not proceeded further with its application.

LaPrade heavy water project

In May, negotiations broke off between the federal and Quebec governments as to the terms and conditions under which an amount of \$200 million would be spent as a federal offset to continuing with the LaPrade heavy water plant construction at Gentilly, near Trois Rivières. The proposal to build La Prade was initiated in 1972 by Atomic Energy of Canada Limited (AECL) shortly after the Quebec Hydro decision to build the Gentilly II nuclear power generating station and the Quebec government's indication that Quebec Hydro was to proceed on a significant nuclear generating program. By November 1974, federal-Quebec negotiations had been completed and construction commenced. By the end of 1977, \$260 million had been spent on plant construction. Earlier that year, the federal

Minister of EMR had detailed the number and timing of CANDU reactor orders needed from Hydro Quebec over the following decade in order to justify continued construction of LaPrade. In the absence of positive responses from Quebec, AECL recommended to the federal Cabinet that the plant be mothballed in view of the uncertainty surrounding the Quebec nuclear program. On October 21, 1977, the Prime Minister sent to the Quebec Premier a letter specifying the conditions under which AECL would be authorized to continue to build LaPrade. Following a subsequent exchange of correspondence, an agreement to proceed was reached based on an understanding that Quebec would build a third nuclear plant by the late 1980s and would start taking delivery of 1440 tonnes of heavy water in 1988. However, the Quebec White Paper published in June 1978 clearly indicated that Quebec would not need more nuclear power until well after 1990 and no longer desired to follow the previously-planned nuclear program. When further efforts to negotiate failed, the federal government decided in November to abrogate the agreement and to pay all consequent damages. Subsequently, the federal government offered \$200 million to Quebec to be spent on energy-related projects as an offset to continuing with LaPrade but no agreement could be reached as to the use of this money and negotiations broke off in May 1979, to be continued in the 1980s towards final resolution well past the middle of the decade, with the plant remaining mothballed.

**Canada-Mexico
Energy
Cooperation
Agreement**

In May, an Energy Cooperation Agreement was concluded with Mexico whereby Mexico would supply Canada with up to 100,000 barrels a day of oil as soon as production schedules permitted, with deliveries to reach a minimum of 50,000 b/d in 1981. The Agreement also provided for a study in depth of the feasibility of introducing CANDU reactors into Mexico's nuclear program, for the possible application of Canadian technology for developing a Mexican uranium industry, for expanding coal sales to Mexico, and for joint action in energy conservation and the development of renewable energy resources. At the same time, an Industrial Cooperation Agreement was completed. These Agreements were not signed until May 1980, on the occasion of the visit of the Mexican President to Canada. At that time they were combined into one Agreement.

**Dickey-Lincoln
School Lakes
hydro project
-Saint John
River**

In May, the federal government declined an invitation from the U.S. government to resume formal discussions at that time on the Dickey-Lincoln School Lakes hydro project. This was a proposed hydroelectric development for the Saint John River, an international boundary water, with two dams to be located in the State of Maine. The proposed project would impact on Canada through the storage and regulation of flows affecting three existing hydroelectric dams in New Brunswick and through inundation by Dickey Lake of about 5000 acres of land in Quebec. Discussions had begun in 1965. After years of very little activity, Congress appropriated funds for a resumption of project planning in 1975 but discussions with Canada were deferred pending development of a draft environmental impact statement which was completed in December 1978. Canadian interests involved in the project

included, in addition to the flooding of an area in Quebec, the potential environmental and fisheries effects on the Saint John River in N.B., its social and economic implications for near-border communities in Canada, and the energy aspects of the project, including downstream power benefits that might accrue to Canada. Unlike the Columbia River Treaty discussions which were initiated in 1944 and carried through to completion and implementation (see note for December 1976), the Dickey-Lincoln School Lakes hydroelectric project remained dormant 20 years after initial discussions because of questions which remained on both sides of the border as to its merit.

Canada/U.S.
electricity
exchanges

In June the Department of EMR and the U.S. Department of Energy released a joint study of Canada/U.S. electricity exchanges which was initiated when the Prime Minister and President agreed in January 1978 that the two countries should examine the potential for increasing electricity exchanges. The study concluded there were significant opportunities for increased international exchanges in all regions, which could result in mutual benefits such as reduced oil consumption in the production of electricity and increased system reliability. It identified obstacles to the development of such exchanges, citing time-consuming public and regulatory review processes as hindrances, and made recommendations to utilities and to the regulatory agencies of the two governments.

Commitment to
keep 1985 oil
imports below
600,000 b/d

At the Tokyo Summit in June, Canada agreed with other members on the importance of keeping domestic oil prices at world market level or raising them to that level as soon as possible, and it confirmed that it would reduce oil imports by about 100,000 barrels a day by the fourth quarter of 1979. There was also a commitment to keep oil imports by 1985 within a maximum of 600,000 b/d by reducing the country's average annual rate of growth in oil consumption to 1%. At this time, Canada's domestic oil price was further below the international oil price than at any time since 1973 and it was also \$8.50 below the average cost of crude oil in the U.S. at Chicago.

Annual
assessment of
uranium
resources

The fifth annual assessment of Canada's uranium resources was published in June. Using two price categories -- up to \$125/kg U and from \$125 to \$175/kg U -- the total of the estimated resources mineable at uranium prices of up to \$175/kg U was expressed in the following resource categories: measured--80,000 tonnes U; indicated 55,000 tonnes U; and inferred -- 302,000 tonnes U. One tonne U is equivalent to 1 metric ton of elemental uranium and to 1.2999 short tons of uranium oxide (U₃O₈). The resource assessments are used for the purpose of allocating responsibility among Canadian producers for setting aside reserves to meet future domestic requirements before approval is given for exports, and as an ongoing record of uranium resource development..

Offshore
jurisdictional
issues

The new federal government elected in June had promised to transfer ownership and jurisdiction of offshore mineral rights to coastal provinces. The government was subsequently defeated in December 1979 before having time to implement such a policy.

Natural gas
export price
increases

On July 13, the Minister of EMR announced that the price of natural gas exports would be increased to \$2.61(U.S.) per gigajoule (\$2.80 U.S. per MMBTu) from \$2.14(U.S.) per gigajoule (\$2.30 U.S. per MMBTu), effective August 11, 1979. The price increase would raise the annual value of gas exports to about \$2.5 billion. This followed a price advance in February 1979 to \$2.30(U.S.) per MMBTu, both increases being made because of OPEC oil price increases which had raised the price that Canada had to pay for imported oil. The gas export price was set in terms of the cost to Canada of importing the equivalent amount of energy as oil.

Heating oil
shortage
explained

In July, the finding of an investigation initiated in March, as to the cause of heating oil supply shortages in Quebec and eastern Ontario, was made public. The heating oil supply problem, and increased prices experienced by retailers and consumers, resulted from serious operating problems at a number of oil refineries in Montreal, combined with abnormally cold weather. The inquiry had been initiated following concern that refiners might have misused their dominant supply position at a critical time, associated with the Iranian crisis, to squeeze out resellers. The report made a number of recommendations designed to lessen the impact of a future oil shortage and unexpected refinery breakdown.

The resource
development and
export issue -
gas exports -
C.P.A. views

A press report of July 13 directed attention to a recent report by the Canadian Petroleum Association which declared that the urgency of shipping more natural gas out of the country could not be overstated. "It is vital for Canada to maintain or expand the present exploration momentum. Only the exploration and development process can provide real security of supply... Restrictions of markets will eventually stifle this process". At the same time, the Science Council of Canada was warning against being stampeded into more exports in a report in which it was calling for increased expenditures in alternative energy resources development. The Council claimed that the federal and provincial governments were again exposed to pressures for natural gas exports. In the absence of an adequate framework for longer-range and more consistent national decisions, Canada would run the risk of jeopardizing the policy of self-reliance for the more immediate intention of defending its dollar. These views are illustrative of some positions taken in the continuing debate on the oil and gas export question since the early 1950s.

NEB hearing on
gas export
surplus for
Alcan pre-build

On July 10, the NEB commenced a hearing to determine precisely how much gas was available for export, who should export it, and if some or all should be transmitted in 'pre-build' facilities of the proposed Alcan Pipeline.

Applicants had indicated they would attempt to show that the Board's February 1979 estimate of surplus gas of 2 trillion cubic feet was too conservative.

**AECB exploration
licenses
discontinued**

In August, the Atomic Energy Control Board (AECB) discontinued the licensing of surface uranium exploration activities, thereby strictly limiting the application of its exploration permit system to the bounds of the Atomic Energy Control Regulations, as revised in 1974. Companies were no longer obliged to obtain an exploration permit from the AECB as they had had to do since the 1940s.

**Energy policy
principles**

In an address in August, the Minister of EMR set out 9 principles to serve as guidelines and objectives in a federal energy policy: energy self-sufficiency by 1990, with increased participation by Canadians in energy developments; energy prices that reflect true replacement cost and that support conservation objectives; objectives and problem resolution to be equitable to all regions and jurisdictions in Canada; a shift in attitude regarding the need to conserve energy; the substitution of energy resources in plentiful supply for scarcer resources; an energy policy that supports economic growth; enhancement of security of supply, with particular emphasis on Quebec and Atlantic Canada; encouragement of energy R & D; and protection of the environment.

**Need for a new
energy policy**

An assessment of the energy supply and demand situation in September showed that Canada was running a very tight oil supply situation in which it was vulnerable to any refinery breakdown or other mishap. The oil industry had been running at full capacity, since the cut-off of Iranian crude oil deliveries early in the year, in order to minimize oil imports and to meet Canada's International Energy Agency commitments. The more than 60% increase in the international oil price had left the Canadian domestic price \$10 a barrel below the international price but a rapid movement to international price levels would generate huge revenue transfers from eastern to western Canada in the absence of a compensation measure. With a 10% share of oil revenues, as opposed to 45:45 for the provinces and industry, the federal government no longer had the capacity to offset and ameliorate regional problems. In its relations with the U.S. it was having to control oil exports on a monthly basis and to begin to cut back on the 55,000 barrels a day of light crude oil export to 14,000 b/d, a matter of some concern to both governments. This was the environment in late 1979 requiring new national energy policy measures although before they could be developed there was another change of government as a result of the February 1980 federal election.

**Columbia River
Treaty**

The fifteenth Annual Report, dated September 30, 1979, of the Permanent Engineering Board of the Columbia River Treaty concludes that the objectives of the Treaty were being met. Representative of these Annual Reports, the review for the period October 1, 1978 - September 30, 1979 describes the status of projects, progress of Entity

studies, operation of the Duncan, Arrow, Mica and Libby reservoirs, and the resulting benefits. The establishment of the Permanent Engineering Board was provided for under Article XV of the Treaty. One of its duties is to "make reports to Canada and the United States of America at least once a year of the results being achieved under the Treaty" which, through its various Articles, is directed to the cooperative development of the water resources of the Columbia River basin in Canada and the U.S. The Board's reports, which have been published since 1964-65, provide a full record of the implementation of the Treaty and of the results being achieved.

**Foothills Oil
Pipe Lines plan
for Northern
Tier cancelled**

In October, Foothills Oil Pipe Lines Ltd withdrew its oil pipeline application from NEB hearings. It had proposed transporting Alaska crude along a Canadian route, from Alaska to Edmonton, to augment oil supplies to Northern Tier refineries in the U.S. mid-west. It was apparent at the time that U.S. authorities were favouring the Northern Tier pipeline proposal along an all-U.S. route from the Puget Sound area to Minnesota. However, none of the four proposals (see February 1979 note) was ever approved.

**Speech from
the Throne**

The Speech from the Throne of October 9 included a government commitment to make Canada self-sufficient in energy by 1990. To that end, in consultation with the provinces, measures were to be taken to encourage a significant reduction in Canada's overall energy consumption, and to stimulate a major expansion in the country's capacity to supply and distribute energy in various forms. "In bringing forth these measures, my government accepts and respects provincial jurisdiction over resources, as it accepts its own responsibility to ensure economic stability, competitive advantages and other national objectives." The position being taken by the federal government at this time in relation to offshore jurisdiction was that coastal provinces should have essentially the same rights to mineral resources off the Continental Shelf as all provinces have with respect to natural resources on land.

**Task Force report
on privatizing
Petro-Canada**

In October, the Report of the Task Force on Petro-Canada was completed and submitted to the Minister of EMR. The Task Force had been asked to advise the government as to procedures for transferring Petro-Canada to private ownership, which of the existing assets of Petro-Canada might most beneficially be returned to the private sector, as well as means of broadening Canadian participation and ownership in the petroleum industry. It had also been indicated that it would be important for the federal government to be left with sufficient capacity to negotiate state-to-state oil purchase contracts; to promote frontier exploration with increased Canadian participation and at a pace which could not be expected of the private sector alone; and to promote oil sands and heavy oil development. On the basis of these terms of reference, the Task Force recommended that the public sector activities and assets of Petro-Canada should reside in a new Government Agency and that Petro-Canada, without its public

sector mandate, should not be dismantled but should be privatized, with all shares of the financially restructured and re-organized company being distributed to every Canadian citizen as a gift from the Crown. On December 20 the government announced its plans for Petro-Canada as a publicly-traded commercial energy resource corporation, but it was defeated in the February 1980 election and the proposal did not proceed at that time.

**James Bay hydro
project opens**

In October, opening ceremonies for the James Bay Hydroelectric Project were held at the LG 2 site. The first James Bay studies were carried out in 1964. The decision to construct four generating stations on the La Grande River was made in 1972 but preparatory studies were not completed until 1974 and a modification of the Phase I development was made in 1978 involving the adjustment in the capacity at certain sites and the elimination of site LG 1 from the initial development. It was considered in 1979 that the Phase I development on La Grande would meet Quebec's electrical needs until 1986 or 1987. Following the full utilization of the output from the La Grande River, other development possibilities existed on other rivers flowing into James Bay. The LG 2 site installation, 900 miles north of Montreal, has a capacity of 5328 MW, slightly larger than Churchill Falls. It was estimated in 1979 that the overall project cost of the four sites of the La Grande complex and the transmission lines would be \$16.2 billion. Prior to the James Bay development, Hydro Quebec had contracted to purchase the major portion of the Churchill Falls output on a long-term contract basis which remained a subject of dispute, as to price, between Quebec and Newfoundland during much of the 1970s and 1980s.

**Industrial energy
conservation
programs and
conferences**

On October 1-3, an International Industrial Energy Conservation Conference was held in Toronto as Canada's major contribution to International Energy Conservation Month. In December 1978, the International Energy Agency (IEA) had declared October 1979 as a period of time in which all IEA member countries would re-emphasize the need for energy conservation and launch new initiatives. The October conference provided an opportunity for all IEA countries to review and evaluate energy conservation programs in a range of industries and to assess new trends. Canada had held its first conference on industrial energy conservation in May 1975 involving representatives of industry and government, and the second conference in March 1976 when 10 Task forces were at work. By 1979, at least 15 industry task forces were working on a voluntary basis towards conservation targets ranging from 3% to 20% for reduction in energy usage per unit of output between 1972 and 1980. At the October 1979 international conferences, Canada was able to announce that in 1978 there had been virtual attainment of industry's overall 1980 target.

**Canada-U.S.
energy relations
- extraterri-
torial issue;
Alcan commitment**

On November 2, the Canadian government sent a formal Note to the U.S.A. government referring in particular to the Oil Windfall Acquisition Act of 1979 then before Congressional Committees for consideration. The Canadian government considered that the extraterritorial reach of

the proposed legislation on the activities undertaken by Canadian corporations outside the U.S. was unacceptable, being in conflict with Canadian law and policy and, in claiming jurisdiction over foreign affiliates including those incorporated in Canada, offended against Canadian sovereignty. The Windfall Tax proposal was part of the President's national energy strategy announced on April 5, 1979 which also included a plan to let oil prices rise to world levels, with full decontrol by September 1981. In announcing further energy priorities on July 15, 1979, the President stated that the Alaska Natural Gas Transmission System, would be completed by 1985: "I will insist this pipeline be built". Such assurances led to the federal government decision on July 1980 to approve the Canadian pre-build sections.

**First Ministers'
Conference on
Energy - energy
pricing issues**

A First Ministers Conference on Energy was held on November 12. In opening the Conference the Prime Minister emphasized the importance of taking a decision on energy policy in the near future and had convened the meeting with Premiers to provide a full opportunity for an exchange of views on energy pricing and policy objectives. Opposing views on pricing were taken by Ontario and Alberta. Ontario was opposed to equating Canadian crude oil prices to OPEC prices, or even U.S. oil prices, claiming that a \$4 per barrel annual increase would lead to a national recession. With a \$4 per annum increase, Ontario's 1983 oil and gas bill would be \$13-\$14 billion above 1979 levels while Alberta's revenues would be \$5 billion over and above its 1979 \$4 billion income rate. This might remove the federal government's ability to manage the economy. Alberta noted that conventional oil reserves were declining rapidly and that production was at its limit. Higher prices were needed to encourage greater resource development but Alberta would accept an oil price set somewhat below the U.S. price level. The Alberta Premier maintained that the province had forgone revenues amounting to \$15 billion in the period 1975-79 because, instead of prices rising steadily toward international levels, the gap had widened. All Premiers shared the view that definitive action had to be taken towards energy self-sufficiency. A partial agreement was reached between the federal and Alberta governments providing for the international price for synthetic crudes, and 85% of the lower of the Chicago or international price for conventional crudes by 1984 but the agreement had yet to be concluded when the government fell as a result of its December 11 budget.

**Coal resources
and reserves**

In December, EMR released a report entitled "Coal Resources and Reserves of Canada". The report provides reserve estimates in terms of rank and quality and includes information on other physical characteristics of Canadian coals. The report also describes the resource and reserve classification system developed for Canadian coals, noting that it is based in the first instance on international criteria and then adapted to suit Canadian conditions. Following the publication of this report, plans were made to complete coal resource and reserve assessments more frequently than had been the case in the past.

Gas export
approvals - a
step towards
pre-build

On December 6, the Minister of EMR announced new natural gas measures including plans to work with the provinces and the gas utilities to expand the market for natural gas in Canada. At the same time, Alberta introduced legislation to facilitate the implementation of marketing incentives for new gas sales. The Minister also reported that the NEB had determined that Canada now had a significant exportable surplus of natural gas and was prepared to issue export licences for a total of 3.75 trillion cubic feet. The Board had received applications for the export of 8.8 tcf for terms of up to 15 years and found it could approve the full amount only through 1984, with reduced levels through 1987, and no new exports beyond 1987. Almost half the new exports were for Pan-Alberta Gas Company and, in approving them, the Board specified that they be delivered through the pre-build section of the Alaska Natural Gas Pipeline. It was left to the sponsors of the Alaska Highway Natural Gas Pipeline to respond with firm commitments for the entire pipeline so that the pre-build could be approved by the federal government.

Government
defeated on
Budget energy
provisions

On December 11, the federal government brought down its budget which contained a number of new energy measures related to conservation, oil substitution, oil supply, and R&D directed to the goal of self-sufficiency in oil by 1990. These measures were to include a new energy tax whereby the federal government would obtain half of the returns from oil and gas price increases that exceeded \$2.00 a barrel and 30¢ per Mcf. In order to encourage greater conservation of energy and to raise revenues badly needed by the government, an excise tax of 25¢ a gallon was to be imposed on gasoline and other transportation fuels but not on heating oil. It was to replace the existing 7¢ tax on gasoline, representing an increase of 18¢. Other measures included a refundable, energy tax credit of \$80 per adult and \$30 per child for the benefit of lower income groups. The wellhead price of oil would increase in 1980 by \$1 per barrel on January 1, \$2 on July 1, and \$1 on October 1. From 1981 to 1984, the price would increase by \$2.25 on January 1 and July 1. On December 13, 1979, the government was defeated on a vote of non-confidence on the budget and an election was called for February 8.

Energy Supplies
Allocation Board
established
pursuant to
1979 Act

On December 12, the Minister of EMR announced the appointment of members of the Energy Supplies Allocation Board, pursuant to the Energy Supplies Act, 1979. The Board's initial role, as provided in the Act, was to review the planning already carried out by officials of EMR, in conjunction with the provinces and industry, in order to ensure that Canada would be fully capable of meeting any petroleum supply emergency with well-prepared and timely plans for action. In the event of a supply emergency being declared by Parliament, the Board is empowered, as required, to allocate crude oil supplies and petroleum product supplies and to implement a gasoline rationing system.

Conservation
"Save 10"
program saves
\$100 million

Analysis completed in December showed that the Federal Internal Energy Conservation Program, "Save 10", reduced the government's energy bill by \$36.5 million during fiscal 1978-79, bringing the savings for the three

years since its introduction to about \$100 million. Conservation measures adopted by participating departments included reduced lighting and heating levels, and improved heating plant efficiency.

Hibernia P-15 oil discovery

The oil and gas exploration highlight of 1979 was the successful completion and testing in December of the Hibernia P-15 oil discovery off the east coast of Newfoundland. During testing, flow rates of up to 3,770 barrels per day were recorded, with much greater potential being indicated. Delineation drilling on the Hibernia structure proceeded in 1980 to determine its recoverable oil reserves.

Low head hydro - tidal power

In December, the federal and Nova Scotia governments announced agreement on construction of a low head hydro demonstration plant at a site in the Annapolis Basin of Nova Scotia. The federal government agreed to contribute up to \$25 million to cover the difference between estimated direct benefits and total cost of the project. The two governments believed that large scale development of a new hydroelectric turbine for the project could improve the economics of harnessing undeveloped hydro resources in Canada and enhance prospects for development of major total energy sites on the Bay of Fundy. Immediate benefits to Nova Scotia from the Annapolis Basin project were expected to include displacement of fuel oil imported to produce electricity from existing thermal generating stations.

Energy policy planning - end of 1979

A number of energy policy programs were in advanced planning stages at the time of the call of an election in December 1979. The nature of these programs is indicative of the energy policy situation in Canada at that time, and the government had planned to proceed with them early in 1980. With a change of government in February 1980, some of the programs were carried forward and incorporated into the National Energy Program as announced in October of that year, while others were changed or replaced. Among the programs being prepared at the end of 1979 were those relating to oil pricing; gas pricing; a change in energy taxation to ensure that the federal government acquired a greater share of total oil industry tax revenues than had been customary in the past; accelerated development of the oil sands; provision of a refundable tax credit for lower-income families to compensate for increasing fuel costs; transfer of the Canadian Home Insulation Program (CHIP) to the provinces; transitional assistance grants to the Atlantic region to cushion the effects of higher electricity prices; measures to make the income tax system more equitable in the energy area and the closing of tax loopholes; establishment of a Parliamentary inquiry on nuclear energy; and the privatization of Petro-Canada. Reflecting rapidly changing and uncertain conditions in the international energy economy, the period 1979-80 was one of the most active in the history of energy policy planning in Canada.

Oil and natural gas pricing in the 1970s

In December, following continuing increases in the international oil price throughout the 1970s, highlighted by those of 1973-74 and 1979, much attention was being

given in Canada to oil and gas pricing policy as further major increases in the world price were being forecast for the 1980s. Appraisals were taking place from the perspective of pricing policy administration of the 1970s, and earlier. The oil and gas pricing policies adopted since the OPEC price shocks of the early 1970s comprised six main elements:

- a one-price system across Canada for crude oil, subject only to transportation charges;
- a Canadian oil price held below the world level, but moving slowly towards it;
- a ceiling on the Canadian price set in terms of the U.S. oil price at Chicago;
- international oil prices allowed on the output of non-conventional oil projects;
- the domestic market price for natural gas being set to reflect its competitive value with respect to oil;
- the export prices of oil and gas being set to reflect the full competitive value in the export marketplace and the cost of replacing these commodities with imported oil.

The oil pricing policies were implemented through a combination of restraint of the wellhead price of domestic-origin oil, and a federal subsidy program (Oil Import Compensation Program) for users of imported oil. The Petroleum Administration Act (PAA) established a legal framework for elements of the policy, including a federal charge on exported crude oil. Commencing on April 1, 1974, the price of domestic oil was established by agreement between the federal government and the Alberta government. Until 1974, the export price of Canadian natural gas was determined by the gas sales price in contracts between the exporting Canadian transmission companies and the U.S. importer. In the spring of 1974, the National Energy Board held a public hearing into gas export pricing and found exports to be under-priced and, effective December 1, 1974, the government established a new export price of \$1.00/Mcf, 40 cents above the existing price. Thereafter, the export price was determined on a Btu-parity price basis with the world price for crude oil. Administered increases led to a price of \$2.46/MMBtu (U.S.) by August 1, 1978. The domestic price of natural gas was set by federal-Alberta annual agreement, commencing in November 1975, following the establishment of the PAA, (a practice that continued until 1986 when price de-regulation was being implemented). Up to 1975, city gate prices of natural gas sold in Canada were established by the cost of gas in the field plus the TransCanada Pipelines cost of service, with rates, tolls and tariffs to Eastern Canada being set by that company, subject to NEB approval. In 1973, the NEB established a five-zone detailed rate structure on the TCPL system which determined city-gate prices for Alberta gas sold east of Alberta. The following tabulation provides a record of oil and gas price trends in the 1970s, in terms of delivered costs to Toronto of domestic crude oil and natural gas (annual averages):

| | <u>Crude Oil</u> | <u>Natural Gas</u> |
|------|------------------|--------------------|
| | <u>\$/bbl</u> | <u>\$/Mcf</u> |
| 1970 | 3.25 | 0.43 |
| 1971 | 3.50 | 0.43 |
| 1972 | 3.60 | 0.48 |
| 1973 | 4.20 | 0.49 |
| 1974 | 6.46 | 0.59 |
| 1975 | 8.04 | 0.88 |
| 1976 | 9.30 | 1.33 |
| 1977 | 11.07 | 1.58 |
| 1978 | 13.25 | 1.90 |
| 1979 | 14.67 | 2.06 |
| 1980 | 18.08 | 2.42 |

THE YEAR 1980**International
crude oil
price 17 times
the 1970 level**

As a result of the dramatic transformation in the international oil trade in the 1970s, the 1980s opened with the weighted average of official dollar prices for crude oil being almost double in January of what it was 12 months earlier and about 17 times what it was in January 1970. The price escalation initiated in 1973 gathered momentum during 1979 and increased rapidly in the latter part of that year so that by January 1980 Saudi Arabia Light crude oil was \$ US 34.50 a barrel, up from \$23.49 in July 1979 and \$14.82 in January 1979. It was against this background of rapidly escalating oil prices that the new federal government, elected on February 18, 1980, began to urgently put in place new energy policy measures, announced as the National Energy Program, later in the year at the end of October. However, by that time the price had peaked and by 1986 had declined to as low as \$10.

**Renewable energy
and energy
conservation
technologies
programs**

In January the Canada-New Brunswick Agreement for the Development and Demonstration of Renewable Energy and Energy Conservation Technologies was signed. By that time other provinces and territories were committed to this \$113 million, 5-year program. Saskatchewan and the Northwest Territories signed their Agreements in March. Alberta, Nova Scotia and P.E.I. were participating with the federal government in other, but similar, conservation and renewable energy programs. Projects sponsored by these programs could range from the demonstration of energy-efficient building systems to the production of energy from wood waste as well as projects involving the use of wind, biomass, and solar energy.

**The energy price,
security and
development
issues**

During the election campaign, leading to the federal election of February 18, there was much debate in January on energy policy matters. The debate centered on three issues: domestic oil and gas prices and how they should be related to international prices; energy security of supply and how it should be achieved through accelerated resource development, oil substitution and conservation; and the relation between energy and economic development with reference also to questions of tax incidence and revenue sharing.

**Cape Breton
electrical
generation
plant**

In February it was announced that the Lingan Two coal-fired electric generation plant in Cape Breton Island would come on stream by mid-year, a year ahead of schedule. The 400,000 tons of coal required annually in the plant was scheduled to come from Cape Breton mines and would replace 1.6 million barrels of imported oil a year. The construction of this plant was assisted through a \$3 million grant under the Canada - Nova Scotia Oil Substitution and Conservation Agreement.

Canada - U.S.
agreement on
gas pricing

Following a visit to Ottawa in March of the U.S. Secretary of Energy, he and the Minister of EMR released texts on March 28 of an exchange of letters on gas export pricing. It was agreed that the pricing formula for natural gas would continue to be based on an export price for Canadian gas which was linked to the cost of Canadian oil imports. A new pricing formula called for the calculation on the first of every month of the export price and changes 90 days later as required. The monthly calculation allowed Canada to react immediately to changes in world oil prices and the 90-day price lag was to ensure that Canadian gas would remain competitive with alternative fuels in the U.S. On April 15 it was decided to delay the first export price determination for 3 months and to leave the export price at \$ US 4.47 per million Btu until October 1, 1980. The visit of the U.S. Secretary of Energy to Ottawa provided for an exchange of views on a wide range of energy matters at a time when it was considered that the world was facing very serious energy problems. While the two countries would pursue strategies designed to meet their individual circumstances, it was agreed that such exchanges could be valuable in determining the position each country would take in response to the energy changes of the 1980s.

Government
invokes force
majeure clause
of the Syncrude
agreement re
international
oil prices

On March 28, the Minister of EMR announced that, due to the sudden and extreme escalation in international oil prices of the previous few months, the federal government would be invoking the force majeure clause of its agreement with participants in the Syncrude oil sands project. Under that agreement, the federal government had allowed production from the oil sands plant access to international prices, based on the original agreement of 1976 when international prices were under \$13 per barrel. By March 1980, prices had increased by about 300% and had actually doubled to \$36(Cdn) over the previous year. However, pending completion of discussions with the Alberta government in relation to the federal objective of developing a "made in Canada" price which would reflect the economic cost of developing incremental oil supplies, the federal government had decided to continue to make compensation payments allowing Syncrude, and Suncor, access to international prices. An appropriate synthetic oil price was to be established within the context of an overall pricing agreement.

Petroleum
Compensation
Board and the
OICP

In its report to the Minister of EMR on fiscal year 1979-80, the Petroleum Compensation Board (PCB) provided information for that fiscal year as available to the end of March, noting that total expenditures had been \$406,357,000 against total revenues of \$399,597,000. Almost all of the revenues came from the Petroleum Levy while total expenditures had been divided almost evenly for Syncrude and for Suncor oil sands compensation. The Energy Supplies Allocation Board had been established on January 14, 1974 and continued in existence by virtue of section 68 of the Petroleum Administration Act (PAA) of June 19, 1975. The Board was renamed to Petroleum Compensation Board by an Amendment to that Act on April 20, 1978. PCB administered the Oil Import Compensation Program

(OICP), the program for use of Canadian crude at Montreal, and the New Petroleum Resources Compensation Program. The OICP was established in April 1974, retroactive to January 1, 1974, to insulate the Canadian economy from the impact of the rapid increases in the price of foreign crude. By March 1980, the average cost of imported crude was \$ Can. 34.50. The aggregate amount of compensation authorized to be paid, pursuant to Part IV of the PAA for fiscal 1979-80, totalled slightly more than \$1.6 billion. Until the late 1970s, import compensation paid on imported crude was to a large extent offset by export charge revenues from Canadian crude exports. In the last quarter of fiscal 1979-80, there was a \$21.20 per barrel difference between the import and domestic oil prices. The Petroleum Compensation Revolving Fund was created, with an initial authorization to have up to \$20 million outstanding at any time, in order to provide compensation on synthetic crude through revenues generated by the Petroleum Levy which began to fall short in 1979-80, with additional funds being made available on a loan basis from the Consolidated Revenue Fund.

Financing Petro-Canada operations

On April 8, the Minister of EMR announced the completion of a further purchase by the government of shares in Petro-Canada. An additional \$80 million was invested in Petro-Canada preferred shares, the government thereby reinforcing its commitment to the company and its program of exploration and development, particularly in frontier regions and in the oil sands. This means of helping to finance Petro-Canada operations had been used since the company went into operation in 1976.

Speech from the Throne energy intentions

In the Speech from the Throne, presented on April 14 after the general election of February 18, the government announced the following intentions with respect to energy and commenced implementation of related policy measures:

- a made in Canada oil price;
- a petroleum monitoring agency;
- new conservation initiatives;
- increased emphasis on the production of new domestic energy supplies;
- more rapid substitution of oil by other energy sources;
- plans for a gas pipeline to Quebec City and to the Maritimes;
- expansion of Petro-Canada's resource development and oil supply initiatives;
- new oil and gas legislation to encourage accelerated frontier development;
- establishment of an alternative energy corporation;
- and the goal of 50% Canadian ownership of the petroleum industry by 1990.

NEB report preparatory to pre-build

At the end of April, the government commented on the National Energy Board's Reasons for Decisions in a report released by the Board which had recommended new natural gas exports. Board recommendations require Governor-in-Council approval before export licences can be issued, and the report at that stage had not been considered by Cabinet.

However, the government had approved release of the report in order to allow the Board's hearing on the financing of the pre-build sections of the Alaska Highway Gas Pipeline to go forward. Once the hearing was completed, and assurances received from the U.S. regarding the Alaska section of the pipeline, the Cabinet would be able to consider all of the issues relevant to pre-building and new gas exports. The government emphasized that decisions on natural gas exports would not be taken until it was satisfied that domestic market expansion was proceeding as quickly as possible.

Site selection
for uranium
refining
facility at
Blind River

In April, the government announced site selection in northern Ontario for the construction of a new uranium refining facility. The site chosen was in the vicinity of Blind River. The decision to locate the refinery at that site was taken following an extensive review of all factors including the policy of having resources processed at or near their source whenever it was feasible to do so. A second reason was recognition of the need for research and development leading to safe interim storage and underground disposal facilities for spent reactor fuel. At the time of this decision, Canada was the second largest producer and the largest exporter of uranium in the world. Federal government policy required that uranium mined in Canada and surplus to domestic requirements be processed to the most advanced form possible prior to export. Additional processing capacity was needed to ensure continuity of supply to Canadian export markets.

Energy and
the Quebec
referendum

During April, when there was extensive debate preparatory to the referendum in May on Quebec's independence, there was considerable reference in federal government statements to Quebec's energy future. The federal view was that a "sovereign" Quebec could not become self-sufficient in energy. Hydroelectric power alone would not be enough and Quebec, without Canada, would be highly vulnerable to uncertain international sources of hydrocarbons, and vulnerable to relying on exports of a resource (hydroelectric power) that the Province would need in the future. It was also pointed out that between 1974 and 1979 Quebec was able to save \$5.5 billion as a result of Canada's import subsidy policy.

Petro-Canada
proposed oil
sands project

In May, Petro-Canada and Alberta Gas Trunk Line Company Limited announced a joint venture to construct Canada's fourth oil-sands mining complex (Suncor and Syncrude were in production and Alsands was under development). The new project was to be the first Canadian-owned and managed oil-sands mining complex. The project was planned to be of comparable size to Syncrude (130,000 b/d of synthetic crude) and Alsands (140,000 b/d).

Energy
conservation
in industry

The third federal government/industry conference on energy conservation was held in May. The conference provided a forum for an exchange of views between government officials and industry sectors participating in the voluntary Industry Energy Conservation Program which had been initiated in 1976. At that time, industry agreed to organize itself into task forces along industry sector

lines and to establish conservation goals for each sector. When the program was established it covered 10 industrial sectors. By 1980 it had been expanded to include additional task forces and covered 80% of industry energy use. Targets for 1980 were met and new conservation goals and initiatives were set for 1985, including a reduction of 23% in energy use compared with the base year, 1976.

**Oil pricing
and revenue
sharing
principles**

In May, the Minister of EMR identified in public statements a set of principles with regard to energy pricing, supply, use and equity, in the context of the international oil prices experience of the 1970s but particularly in relation to the doubling in price in 1979. The first principle was that Canadian prices must reflect Canadian realities, with Canadian oil consumers not being tied to international prices. Secondly, the price of oil in Canada should reflect in some direct way the costs of acquiring it. Thirdly, the revenue sharing system should be altered so as to ensure that the federal government would have sufficient revenue to allow it to carry out its basic responsibilities of economic stabilization and revenue equilization across the country. These objectives had been defined as a result of revenue trends within Canada arising from oil price increases, with the revenues of the Alberta government from natural resources being about \$1900 per capita in 1978 while Ontario's were about \$14. With large increases in oil revenues in 1979 and expected further increases in the 1980s, the outlook was for all of the advantages of higher international prices going to the oil producing provinces and producers, while all of the economic consequences of higher energy costs would be borne by consumers and the national government. This was the nature of the federal government's concern as it entered negotiations regarding the oil pricing system that was to expire on July 1.

**Canadian Energy
Research
Institute**

In May, Order in Council approval was given for the continuing support by the Government of Canada, through the Minister of EMR, of the Canadian Energy Research Institute. The Institute had been established by an agreement entered into in April 1975 by the Alberta Department of Energy and Natural Resources, the Private Energy Research Association, the University of Calgary, and EMR. With renewal of the agreement in 1980, the Institute entered its second five-year program of research into energy matters.

**New energy
policy targets
including
reduction of
oil use to 10%
of requirements;
gas pipeline to
Quebec City;
heavy oil
upgrading**

In speaking to the Pipeline Contractors Association on May 15, the Minister of EMR announced that, as a general goal, the federal government intended to begin working immediately towards a reduction in the residential, industrial and commercial uses of oil to 10% of their net energy requirements. In total this would save about 375,000 barrels of oil each day. At the time, oil was accounting for 25% of commercial and industrial energy requirements, and 40% of the residential energy market. In the same statement, the Minister advised that the federal government had accepted the National Energy Board recommendation that the natural gas system be extended beyond Montreal to Quebec City, at an estimated cost of \$1 billion. In addition, it was also announced that three

eastern Canada refiners that were major producers of residual oil -- Petrosar and Suncor in Sarnia and Ultramar near Quebec City - had made commitments to install upgrading facilities to help deal with the heavy fuel oil surplus problem.

The blended
oil price

Statements made by the Minister of EMR during May expanded on the stated intention in the April 14 Speech from the Throne of establishing a made in Canada price for oil -- a new blended price which would progressively incorporate the cost of the Oil Import Compensation Program while at the same time maintaining a single national price for consumers. The new blended price system allowed for the creation of a new class or classes of domestic oil, in addition to the existing conventional and synthetic production. The "new" oil classes could include new conventional oil, tertiary recovery oil, or frontier oil and these classes were to receive incentive prices as determined by negotiation. Production from existing conventional fields was classified as "old" oil and was to receive a lower price than "new" oil. The total cost of oil imports was to be folded into the consumer price by an extension of the system of refinery levies. When fully operational, the system would call for all domestic refiners to pay a levy covering the additional costs of imported oil and they would also continue to pay a levy to defray the extra costs of synthetic oil. The total levy would also be applied to the costs of other kinds of "new" domestic oil. Thus, domestic refiners would, in effect, be paying a blended price based on the true cost of imported oil and the various streams of domestic oil and, in the process, the burden of oil prices was to be shifted from the taxpayer to the oil consumer.

Purchase of
Mexican oil
through
bilateral
negotiations but
resistance to
continental
energy policy

During a visit of the Mexican President to Canada in May, an agreement was signed which included an undertaking on the part of Mexico to sell Canada, through a state-to-state oil contract, 50,000 barrels a day of crude oil. This followed negotiations which had extended over a period of more than a year. Threatened oil shortages resulting from the Iranian crisis in 1979 had led Canada to seek alternative sources of foreign oil supply. The visit was also the occasion for the airing of views concerning trilateral economic cooperation among Canada, the U.S. and Mexico, a proposal being promoted by some U.S. politicians. Neither Canada nor Mexico favoured a formal agreement of this nature. Canada preferred to deal with its North American neighbours in the customary bilateral manner. The Canadian government also confirmed the traditional aversion to a continental energy policy or common market in energy.

Labrador Sea
exploration

In June, the Resource Management Branch (now COGLA) of EMR approved three drilling programs by Petro-Canada in the Labrador Sea. Since exploration began in this east coast region in 1971, 17 wells had been drilled, with significant flows of gas and condensate in four of these wells. (By 1985 Petro-Canada had set aside any further exploration in the Labrador Sea for an indefinite period).

Venice Summit -
coal use to
be doubled by
1990

Canada participated in the Venice Summit meeting in June and agreed with other western industrialized countries on a target of doubling coal production and use by 1990. This followed an International Energy Agency (IEA) meeting in May when Canada supported the common international position on coal that had been worked out in the IEA a year earlier regarding increased coal use through construction of coal-fired electricity generation plants. In 1980 Canada was preparing for new international coal marketing opportunities in the expectation of coal being taken into greater use throughout the world.

No progress on
mid-1980
domestic oil
price
negotiations

During June, oil price negotiations between the federal and Alberta governments were unsuccessful in reaching an agreement regarding future pricing following termination of the existing agreement on June 30. Alberta wanted to have Canadian oil prices linked to prices at world levels while the federal government's policy was to implement a blended-price system in which the price for domestically produced crude oil would reflect Canadian production costs and the Canadian industry's cash needs. The existing Canadian price was \$14.75 per barrel compared with the world price of \$32. The Alberta proposal was to have domestic prices rise gradually to 85% of the U.S. price. The international oil price situation remained unsettled following a June meeting of OPEC when the 13 countries failed to agree on a unified structure of prices, with some members pressing for yet another increase and others led by Saudi Arabia attempting to curtail further price advances.

EMR Energy
Program
expansion

In July, Treasury Board authority was received by EMR to establish and staff new organizations and programs to implement a new national energy program. A requested increase in resources was approved along with plans for a change in the organization structure of the Energy Program. Final approval of a new Energy Program activity structure was received in January 1981.

Alaska Highway
Gas Pipeline
pre-build
approved

On July 17, the Minister of EMR announced in the House of Commons approval in principle of the Alaska Highway Gas Pipeline pre-build section. The Minister noted that in 1977, Canada and the U.S. had signed a bilateral agreement for construction of the gas pipeline (see September 1977 note). The Northern Pipeline Act was proclaimed on April 13, 1978, thus providing the legislative authority to implement the bilateral agreement of September 20, 1977. Pre-building had become of prime importance as a means of facilitating completion of the entire gas pipeline project from Alaska, and it was also seen in terms of its potential to provide widespread economic benefits to Canada. In the intervening years since the project was first planned, the volume of Canadian gas, surplus to domestic needs and available for export, had grown from 800 billion cubic feet to 4.5 trillion cubic feet. For pre-build to commence in the summer of 1980, Condition 12(1) of Schedule III of the Northern Pipeline Act required modification because it would have been impossible for Foothills (Yukon) to meet the original

requirement of establishing that financing had been obtained for the whole line in Canada. Accordingly, the NEB had issued an order amending condition 12 on April 2, subject to establishing that financing for the southern segments had been obtained and that financing could be obtained for the remainder of the system before construction of the pre-build would be authorized. The NEB held hearings to determine if these requirements could be met, and the government was subsequently satisfied that the financing commitments could be met. On July 18, 1980, the Governor-in-Council accepted the NEB recommendations relative to pre-build and to the export of additional volumes of gas through the pre-build facilities. As proposed in 1979, the Alaska Highway Gas Pipeline was designed to transport 2.4 billion cubic feet per day from Prudhoe Bay to markets in the U.S. The system in Alaska, Canada and the U.S. would have a length of 4,786 miles. Total cost of the project was estimated in 1980 at \$14.8 billion.

U.S. assurance
re pre-build of
the Alaska
Highway Gas
Pipeline

In his July 17 statement in the House of Commons concerning the \$1.6 billion pre-build of the Alaska Gas Pipeline, the Minister of EMR reported on the assurances given by the U.S. government that the entire pipeline system would be built. This had been a condition of Canadian approval of the pre-build sections. These assurances included a joint resolution of Congress in July expressing strong and continuing commitment to the project. The Canadian government had also taken account of the assurances the U.S. government was prepared to make with respect to the financeability and time completion of the system and the President had provided formal assurances in a letter to the Prime Minister received on July 17, 1980. Within the U.S., the Federal Energy Regulatory Commission had certified the pre-building of the western and eastern legs of the system in the lower 48 States. Finally, a June 19, 1980 agreement was signed by the major gas producers in Alaska and Northwest Alaska Inc., the pipeline sponsor in that area, on the sharing of some \$500 million in expenditures to complete final design and engineering work required to construct the pipeline and a gas plant, and to arrive at final cost estimates. On June 19, the producers and the sponsor also signed a statement of intention in which they undertook to work together to facilitate the financing of the pipeline in Alaska with a view to achieving completion of the system by 1985. (By 1987, as a result of rising costs and the fact that gas was not in short supply in the U.S., the economics of the pipeline system from Alaska were such that financing of the project still remained in abeyance although the pre-build sections from southern Alberta had been in operation since the early 1980s).

Petroleum
Monitoring
Agency
established

On August 1, the Minister of EMR announced establishment of the Petroleum Monitoring Agency (PMA). Under the Petroleum Corporation Monitoring Act, reports on the petroleum industry were issued by EMR for 1977, 1978 and 1979. Pending amendments to the Act, the new Agency was equipped with all the powers of a commission under the Inquiries Act. The Agency reports to the Minister and has

authority to publish reports in respect to the financial position and performance including profitability, cash flow, research and development effort, reinvestment behaviour, costs of exploration, development and production, and ownership and control of the industry. Through the activities of the PMA, the public would be better informed, and the government would be better able to plan and develop policies for the management of Canadian energy supplies and resources. The report on the petroleum industry's 1979 financial performance, investment patterns, and ownership and control was released early in August, 1980, the last in a series of three produced by EMR under the Petroleum Corporations Monitoring Act of 1978. By the end of 1979 non-residents owned 72% of Canadian petroleum industry revenues, down from 80% a year earlier.

Federal-Alberta
oil pricing
impasse -
notice given
re new national
energy policy

On August 1, the Minister of EMR issued a statement on oil and gas prices and related matters. This followed extensive discussions with Alberta on energy policy, but important differences were not resolved. The federal government had offered a 10-year agreement under which the wellhead price of Alberta crude would rise from \$14.75 a barrel to the same price as that proposed for non-conventional oil prices and would be several times the 1980 level by 1990. Alberta wished to link domestic prices to international prices and to raise natural gas prices faster than oil prices. By 1984, Alberta's proposal would have resulted in an increase in the range of \$22.50-\$44.60 per barrel over and above the July 1, 1980 price of \$14.75, depending on the rate of escalation of international oil prices. The federal government was also concerned about the division of petroleum revenues: 45:45:10 for industry, the provincial governments, and the federal government. The Minister gave notice at that time that the government would publish a report on the occasion of the next budget, detailing a set of decisions relative to a comprehensive national energy policy. In the meantime, it was not prepared to accept anything more than Alberta's proposed \$2/bbl. increase effective August 1, 1980 and planned on the normal lag of 60 days before an increase was reflected in consumer prices of petroleum products.

11th World
Energy
Conference;
CANWEC

The 11th World Energy Conference was held in Munich in September when 164 technical papers on all aspects of energy technology were presented. The general theme of the Conference was "Energy for our World", and the aim was to show the importance of a long term and safe energy supply by examining the interaction between existing energy reserves and the possibilities for their rational and economic utilization; the development of society; and the protection and improvement of the environment. The papers in total were an impressive testimony to the vast and diverse effort that is going on in the world in research, development and demonstration in all branches of energy technology. Canada has been an active participant in the World Energy Conference since its inception in the 1920s, and in the 1970s and 1980s the Canadian National Committee of the World Energy Conference (CANWEC) conducted a series of energy seminars and sponsored papers for the world conference held once every three years.

International
oil emergency
test - ESAB
participation

It was announced in September that Canada would participate in a 21-nation international test of emergency oil allocation systems during October and November. The objective was to test mechanisms that were designed to ensure equitable distribution of available oil supplies in the event of offshore oil supply shortages. The Canadian portion of the test was directed by the Energy Supplies Allocation Board (ESAB), a federal agency created under the authority of the Energy Supplies Emergency Act (1979). The Board has the mandate to prepare the regulations controlling the allocation of available oil and petroleum products in Canada in the event of a national emergency caused by supply shortages. At the international level, the test in the latter part of 1980, and other earlier exercises were organized and coordinated by the International Energy Agency comprised of 21 nations. In addition, 45 major international and national oil companies and several hundred of their affiliates participated. In Canada, 18 companies took part with ESAB in conducting Canada's part of the test, the third to be held by the IEA.

Accelerated
federal role in
coal technology
and development

In a statement made in September, the Minister of EMR emphasized the importance of coal in the Canadian energy economy, announcing that the federal government was prepared to assume a large proportion of the technical risk in the introduction of new technologies, up to the point of commercial use. Technologies of interest in the near-term included fluidized-bed combustion and coal-in-oil combustion. Fluidized-bed combustion technology was to be tested in a heating plant in P.E.I., with the expectation that this technology would allow the use of the high-sulphur Cape Breton coals in an environmentally acceptable way. Other tests were being planned with the Nova Scotia Power Commission. In studies with British Columbia Hydro and the Saskatchewan Power Corporation, the federal government was testing other new coal combustion technologies to provide for the use of coal under strict environmental standards. In addition to cooperating with the provinces interested in coal, the federal government was negotiating an improved agreement on coal technology with the U.S. government and was participating in a number of coal research projects mounted by the International Energy Agency. Research in EMR laboratories had led to an improved hydrocracking process for upgrading bitumen and heavy and residual oils. In early September, the federal government concluded an agreement with B.C. for the doubling of the Roberts Bank shipping port capacity to facilitate coal exports to Japan and other Pacific markets, and was participating in northeastern B.C. coal development through the provision of transportation and port facilities in the northern part of the Province and through coal resource and feasibility studies.

Oil pricing
and revenue
sharing the
central issues

In a public statement in mid-September, the Minister of EMR referred to the difficulties in reaching an agreement with the producing provinces on oil prices, emphasizing the federal position that oil prices should reflect Canadian cost realities and that the government was not prepared to grant a huge windfall on conventional oil

production but would offer steadily rising prices for conventional production and a very high price to production from the oil sands and enhanced heavy oil. Along with pricing, the issue of revenue sharing had been at the centre of federal/provincial negotiations, and the federal government's responsibility to manage the national economy was noted in the context of the need for some adjustment in the provincial/industry/federal revenue sharing of 45/45/10. The government's intention to announce soon a set of decisions with respect to Canadian energy policy was again made known on this occasion.

**Solar and
renewable
energy
initiatives**

In September, the federal government announced further incentives to encourage the use of solar energy including a \$5 million demonstration program to accelerate the development of solar hot water technology and a provision whereby solar heating equipment would qualify for a 50% capital cost allowance under Class 34 of the Income Tax Regulations. Further reference was also made to plans to establish an Alternate Energy Corporation, as a Crown Corporation, to provide essential support in moving renewable energy technologies beyond the demonstration stage into wide commercial use.

**First Ministers'
Conference -
federal position
on the offshore**

At the First Ministers' Conference on the Constitution held on September 8-12, the Prime Minister set out the position on offshore mineral resources on September 9 in the following terms: the question of ownership should be set aside; the federal government was ready to make a proposal on that basis; the federal government agreed in principle that the major benefits from development offshore should accrue to the residents of the adjacent coastal province; the government proposed, therefore, that until those provinces became "have" provinces, they should receive the same kinds of revenues as are derived by provinces from their onshore resources; the government also proposed a system of joint administration for offshore mineral resources, to involve the federal government and each of the coastal provinces. This system would ensure that each coastal province would have a major say in how the resources were developed off its coast. The issue of offshore jurisdiction with Newfoundland remained unresolved until the signing of the Atlantic Accord in 1985 following a change in government at the federal level in 1984.

**Newfoundland
offshore
jurisdiction**

In its National Energy Program (NEP), announced in October, the federal government expressed its desire to have the Supreme Court of Canada settle the offshore ownership question with Newfoundland as soon as possible. Development of offshore resources had been a subject of federal-provincial discussions for many years. In April 1965, the question of the jurisdiction and ownership of West Coast resources had been referred to the Supreme Court, with a ruling in November 1967 that the Government of Canada owned and had legislative jurisdiction beyond the low water mark and outside the inland waters. A federal-Newfoundland agreement to begin work on a reference of offshore jurisdiction to the Supreme Court had been accepted in April 1976 but agreement on the question to be submitted to the Court was never reached.

Super Energy-Efficient Home program

In October, a new \$6 million demonstration program to promote the design and construction of energy-efficient houses suited to Canadian conditions was initiated as the Super Energy-Efficient Housing Demonstration Program. The plan was to build 1000 houses in Canada to demonstrate new design and building practices, with construction to commence in mid-1981. Annual heating costs were expected to be less than 25% of the cost of heating an ordinary new home.

Oil resource expectations less promising than gas in Canada

In October the Geological Survey of Canada published an oil and gas resources report which indicated that 103 trillion cubic feet of natural gas resources could be discovered during the 1980s, an amount equal to 60 times Canada's 1980 consumption of natural gas. Of this total, 35 Tcf of additional gas discoveries were projected for western Canada in areas where major gas transmission systems were already in place. The prospects for oil discoveries were less promising - 7.8 billion barrels being expected over the decade, with only 2.6 billion barrels in western Canada where pipelines were in place. The indication was that efforts should be made to develop non-conventional resources including the oil sands and that every effort should also be made towards substitution of oil by more plentiful energy sources, and increased efficiency in oil use.

U.S. resistance to Canadian gas following pre-build approval

In October, construction of the pre-build sections of the Alaska Highway Natural Gas Pipeline was underway in Canada following the federal government's decision in July to authorize construction. However, there was no move on the U.S. side to get the main project moving ahead and there was some concern in Canada over the initiation in the U.S., by the Economic Regulatory Administration, of formal proceedings regarding the continued importation of gas from Canada, with U.S. transmission companies being asked to consider the continued security, reliability, and economic desirability of Canadian gas supplies. They were also asked to address specific issues relating to the treatment of take-or-pay obligations in existing sales contracts and the adoption of contingency plans to reduce reliance on Canadian gas -- all directed towards considering Canadian gas as a marginal source of supply priced at the lowest cost alternative on the U.S. market.

National Energy Program (NEP)

On October 28, on the occasion of its first Budget, the federal government published its energy strategy for the coming decade in a report entitled the National Energy Program (NEP). The Program was a set of decisions for national energy management, with three basic objectives:

- security of supply and ultimate energy independence;
- opportunity for Canadians to participate in energy industries, especially oil and gas;
- fairness in pricing and the sharing of revenues among governments and industry.

NEP provisions

The NEP, as announced in October, instituted many measures to reduce consumer demand for oil as well as incentives to encourage increased exploration for new oil supplies. On the supply side, most of the tax incentives, which previously benefitted only a few producers, were replaced by Petroleum Incentives Payments (PIP). On the demand side, an umbrella Canada Oil Substitution Program was introduced to encourage consumers to substitute more plentiful forms of energy for oil, together with other conservation and renewable energy programs. Canadianization initiatives were important components of the NEP. As a strategy for the 1980s, the federal government had decided to bring a wide range of its policy tools to bear in ensuring that Canadianization objectives, initially set in the early 1970s, were met. It was a policy area in which not only rich incentives (such as the PIP grants) were provided, but there were also certain obligations on the oil and gas industry, such as the requirement that consortia seeking oil and gas production licences in the Canada Lands would be at least 50% Canadian-owned. Under the NEP, new initiatives for 1980-83 were planned at a total budget level of \$8.2 billion, including incentives to industry for oil supply initiatives, oil substitution programs, conservation and renewable energy programs, special Atlantic Canada provisions, energy R&D, and several other provisions.

NEP tax and incentive changes

Among the federal tax and incentive changes introduced with the NEP in October were the following. The frontier exploration allowance expired effective April 1, 1980; the supplemental depletion allowance was withdrawn, effective January 1, 1981; earned depletion for Canadian Development Expenses (CDE) on projects that did not qualify for incentive prices was withdrawn, effective January 1, 1981; earned depletion for Canadian Exploration Expenses (CEE) on provincial lands was to be phased out by 1984; and the Petroleum Incentives Program (PIP) was introduced as the replacement for earned depletion, for CEE and CDE, effective January 1, 1981. CEE and CDE were generally reduced by the amount of any government assistance such as PIP payments and provincial drilling incentives. The Petroleum and Gas Revenue Tax (PGRT) was introduced at a rate of 8% on production revenue, effective January 1, 1981. The Natural Gas and Gas Liquids Tax (NGGLT) was introduced on gas and NGL's sold in Canada, effective November 1, 1980, and on gas and NGL's sold outside of Canada, effective February 1, 1981. The Petroleum Compensation Charge (PCC), which replaced the Syncrude Levy, was set at a level sufficient to cover the costs of compensating refiners using imported oil and various categories of high cost domestic oil, to establish a blended pricing system for oil, with the blended price not to exceed 85% of the international price or the average price of oil in the U.S., whichever was lower. The Canadian Ownership Special Charge (COSC) was set at a rate of \$7.25 per M³ on oil and \$0.14 per GJ on natural gas effective May 1, 1981, being established to finance an increase in public ownership in the energy sector. The Special Compensation Charge (SCC) was introduced at the rate of \$4.75 per M³ effective March 31, 1981, to be increased to \$11.64 per M³, effective June 3, 1981.

Alberta
retaliates
against the
NEP

On October 30, two days after the federal government's announcement of the National Energy Program (NEP), the Premier of Alberta announced in a TV broadcast, his government's intention to reduce oil production by 15% over 9 months as a means of retaliation against the federal government. He indicated that in the event of an international emergency, production would be resumed at the full level but otherwise put the onus on the federal government to find new international oil supplies for eastern Canada to replace the oil being cut off by Alberta. To effect the oil supply cutback, the Alberta government passed the Maximum Petroleum Production Regulations under the Mines and Minerals Act in November. In addition, the Alsands oil sands project and the Cold Lake heavy oil project were to be held in abeyance, and the Alberta government also decided to take the federal government to court on the tax (NGGLT) imposed on natural gas exports. The cutback in crude oil production was to proceed in three, 3-month stages of 60,000 barrels per day commencing in March 1981 for a total of 180,000 b/d by the end of 9 months when the additional cost in federal import compensation would be close to \$4 million a day. The foreign exchange cost for 9 months of 1981 was estimated at \$1.7 billion, the import compensation cost being \$965 million.

Alberta-federal
dispute over oil
pricing and the
NEP

During November there was extensive debate in Canada on the National Energy Program (NEP), and on the Alberta government's action to cut back on crude oil production which the Prime Minister felt raised a fundamental question about the federal government's power to regulate interprovincial trade and commerce. However, the Prime Minister, in a statement in the House of Commons, welcomed Alberta's decision to wait for three months before beginning the staged reductions in oil supply, thereby allowing further time for discussion and negotiation. The federal government was particularly dismayed that Alberta had decided, in retaliation against the NEP, to hold in abeyance decisions on oil sands projects even though the equivalent of the international oil price, \$ Cdn 38 a barrel, escalated for inflation, had been offered. Alberta had refused to separate the issues of oil sands pricing and crude oil pricing, wanting the latter to be linked to the international price at the 75% level and achieved on a staged basis over 4 years. The federal government did not want a direct linkage and had instead scheduled price increases of \$1 a barrel every six months and in addition, had scheduled oil recovered by tertiary methods at \$30 a barrel.

Price provisions
of PAA
proclaimed

On November 12, proclamations of Division II of Part II and Subsection 52(1) of Part III of the Petroleum Administration Act (PAA) were tabled in the House of Commons. The proclamations had been issued effective Budget night, October 28, 1980, and were tabled in fulfillment of the requirement that they be laid before Parliament within 15 days of their date of issue. These parts of the PAA permit the Government of Canada to prescribe prices for oil and gas entering interprovincial

trade. The Minister of EMR stated that the government had no choice but to proclaim the relevant provisions of federal legislation given the failure to reach an agreement with the producing provinces on oil and natural gas pricing, but noted further that it was hoped that this action would be only a short bridge to new pricing agreements with the producing provinces, at which point the pricing regulations could be rescinded.

World oil price trend of late 1970s reversed in early 1980s

Forecasts of international oil production and consumption being quoted in November, and earlier in the year when the NEP was in preparation, were based on assessments by the International Energy Agency (IEA) and other world authorities. Those forecasts were foreseeing a shortfall in world oil supply as early as 1985 with related continuing upward pressures on prices. In Canada a quadrupling of the domestic price of crude oil by 1990 from the 1980 level of \$16.75 a barrel for conventional oil was expected. The federal government had offered Alberta a 10-year agreement which would see domestic prices reaching this level by 1990 in keeping with international trends. The record shows that world oil production, including NGLs, peaked at 65.8 million barrels a day in 1979 and, as a result of declining world demand, had declined to 57.5 million barrels a day in 1984 instead of continuing the upward trend of the late 1970s and creating the expected shortage by the mid-1980s. As a result, the world price peaked in 1981 and the official selling price for OPEC crude declined from \$ US 34.00 in that year to \$27.50 in mid-1985 and to the \$10-15 range in 1986.

Criticism of the NEP

During the debate across Canada in November that followed the announcement of the National Energy Program, in addition to the pricing issue much attention was directed to the federal government's objective of increasing the federal revenue share of oil industry revenue from about 10% to 33%. In this context, the Petroleum and Gas Revenue Tax, by which oil and gas producers were to be subject to a tax of 8% of their net operating revenue, was a matter of direct concern to producers. In relation to the Canadianization objective of at least 50% Canadian ownership of oil and gas production by 1990, one of the measures directed towards that objective came under particularly strong criticism: the provision for the federal government, through a Crown company, to acquire 25% interest in a resource development project at any time prior to authorization of a production system for a particular field. The government considered the 25% interest as a form of compensation for the taxpayer while industry (and the U.S. government) considered it as a form of confiscation.

ESAB emergency supply priority categories

In December, the Energy Supplies Allocation Board (ESAB) which takes its legislative authority from the Energy Supplies Emergency Act, passed in March 1979, approved a new classification -- primary food production -- for inclusion in the highest priority rating for the supply of petroleum products in the event of an emergency. The Board's legislation requires it to prepare, review and

maintain contingency plans in readiness before the need for allocation or rationing arises. In the event of an emergency, it must assure sufficient supplies of petroleum to the various parts of Canada by providing for a national and equitable distribution of petroleum products from the suppliers to their wholesale customers. For the allocation process, the Board has three categories, with Category A covering the use of petroleum products relating to the health, welfare and security of Canadians, and including primary food production; uses relating to the economic stability of the country generally falling under Category B; and Category C applying to uses relating to the maintenance of the standard of living, and being the last order of the three priorities. By the end of 1980, ESAB had its contingency plans well underway.

Canada Oil and Gas Act

On December 9, legislation to implement a new legal framework to govern oil and gas resource-development activity in Canada's frontier and offshore regions was tabled in the House of Commons for First Reading in the form of Bill C-48 Canada Oil and Gas Act. The Bill was debated extensively in 1981 and, following House of Commons and Senate approval, it received Royal Assent on December 18, 1981 and was proclaimed in March 1982. It replaced the Territorial Lands Act and the Public Lands Grants Act in relation to the disposition and management of oil and gas rights in Canada lands. The Bill also made provision for amendments to the Oil and Gas Production and Conservation Act to strengthen safety and pollution prevention measures. Principal objectives of the new Act included ensuring active exploration and development of frontier oil and gas rights, increasing Canadian ownership of frontier oil and gas reserves, ensuring that Canadians received a fair return for these oil and gas resources, and optimizing the employment of Canadians and the use of Canadian goods and services in frontier oil and gas activities. Under the new Act, all non-producing federal oil and gas rights were to be converted to the new regime within one year and the terms and conditions of rights issued under that regime were to be negotiated with prospective operators in accordance with perceived geologic promise, operating conditions and desired activity levels. The legislation was designed to establish the Crown's right to an undivided 25% interest in all Canada lands (except lands subject to former leases that fell into the category of pioneer producers). The Crown, or a designated Crown corporation, such as Petro-Canada, would not be liable for any expenses incurred prior to conversion of the Crown share from a "carried interest" to a "working interest". Under that scheme, essentially all of the exploration costs would be incurred by the other interest holders before the Crown converted its share to working interest. However, under the NEP the government would be contributing to future exploration costs under the Petroleum Incentive Program: "the new incentive payment of a minimum of 25% of approved exploration costs on Canada lands, available to any investor, reflects an understanding on the part of the Government that in return for its direct participation in the industry's efforts whenever they occur in the Canada lands, there should be a commensurate

government contribution to the costs of that activity." Federal incentive payments could reach 80% of exploration costs in the case of Canadian companies with a Canadian ownership rate of 75% or greater. The Canada Oil and Gas Lands Administration (COGLA) was established in 1981 to administer the new regime. It replaced the Resource Management Branch in EMR and a similar organization in the Department of Indian Affairs and Northern Development.

IPAC criticism of the NEP

On December 12, the Minister of EMR responded to criticisms of the National Energy Program made by the Independent Petroleum Association of Canada (IPAC) in the form of advertisements taken out in a number of Canadian newspapers. IPAC set out 5 criticisms: the NEP will make Canadians more dependent on expensive insecure foreign oil; it will delay essential frontier exploration, oil sands plants and heavy oil development; it will cost thousands of jobs that could be created by the oil industry across Canada; it will cost Canadians more for gasoline and heating oil in the long run; and "we are the companies your program was supposed to help - the independent companies, but it doesn't help us, it has stopped us in our tracks." Of particular concern to the IPAC at the time was that some of their members were moving their drilling rigs south to the U.S. where they believed operating conditions would be better. The drilling industry had been greatly expanded in 1979 and during the first half of 1980 in anticipation of continually increasing markets and prices. However, a large inventory of natural gas had been built up due to the lack of growth in exports to the U.S. and, consequently, there was little incentive to develop further gas reserves in Western Canada which had been the main activity of many member companies of IPAC. The independent companies were also disappointed in the relatively greater emphasis given to incentives for frontier development than to Western Canada which was their main field of operation and, like the Alberta government, they also had expected a much greater acceleration in the upward movement of oil and gas prices. As in the case of the larger companies, IPAC members were critical of the new tax regime, particularly the Petroleum and Gas Revenue Tax (PGRT), and the special tax on natural gas and gas liquids (NGGLT) which applied to gas exports as well as domestic sales.

Petroleum Incentives Program (PIP)

In December, the federal government released the Petroleum Incentives Program document entitled "The Basic Rules - A Framework", which described the concepts and intended structure of PIP.

Petro-Canada acquisitions

For the fiscal year ending December 31, Petro-Canada reported revenues of over \$1 billion, compared with \$39 million in its first year of operation in 1976. During that 5-year period, its total assets had risen to \$3.8 billion. Shortly after Petro-Canada was incorporated, the Crown's shares of Panarctic Oils Limited were assigned to it at book value of \$78 million. On April 30, 1976, Petro-Canada was given the federal government's 15% share in the Syncrude project and the company took over the government's participation in that project. In August

1976, Petro-Canada acquired all of the outstanding shares of Atlantic Richfield Canada Ltd. (ARCAN) for \$342 million and ARCAN became part of the wholly-owned subsidiary of Petro-Canada: Petro-Canada Exploration Inc. In November 1978 Petro-Canada acquired control (52% of the shares) of Pacific Petroleum Ltd. In early 1979, Petro-Canada acquired over 90% of the shares of Pacific Petroleum, and subsequently obtained all of the remaining shares, and thereby became a 36.7% shareholder in Westcoast Transmission Co. Ltd. which, in turn, was a major partner with Alberta Gas Trunkline Company (later NOVA) in several joint ventures. During 1980, Petro-Canada negotiated for the purchase of Petrofina Canada Inc., leading to an offer in February 1981 to purchase all the assets of that company for an initial aggregate consideration of \$1.46 billion, the acquisition becoming effective on May 12, 1981. This transaction was completed in 1983, the aggregate cost of acquiring all of the shares being \$1.6 billion. In October 1982, Petro-Canada agreed to make an offer to acquire all of the shares of BP Refining and Marketing Canada Limited, with the transaction to be completed by 1985. The Petro-Canada Act had received Royal Assent on July 30, 1975; ten years later Petro-Canada had become one of the largest oil and gas companies in Canada.

Newfoundland -
Quebec Power
Dispute

In December, the Newfoundland government passed the Water Rights Reversion Act whereby Newfoundland repealed the original lease to the existing Upper Churchill Falls power plant. The legislation was then referred to the courts for a ruling as to its constitutional validity, before proclamation. The Act would expropriate the water rights necessary for the production of power and the power plant itself, and this would effectively cancel the contract between Churchill Falls (Labrador) Corporation Limited (CFLCo) and Quebec which had been signed in the 1969. Dispute between Newfoundland and Quebec originated in the 1960s when the Government of Newfoundland authorized development of the Upper Churchill watershed by granting a long term lease to CFLCo. In the same decade, CFLCo and Hydro-Quebec concluded a power contract which gave the Quebec utility the right to purchase almost all of the output of the Churchill Falls generating plant for a period of 65 years at a price of about 3 mills per kilowatt hour initially, declining to 2 mills. Actual controversy began in 1976 when Newfoundland requested 800 megawatts from the Churchill Falls power plant for its own use and in September of that year launched legal action before the Supreme Court of Newfoundland, seeking to recall Churchill Falls power. Quebec countered with its own court action in 1977. Subsequent procedural battles prevented the central issue - validity of the 1969 power contract - from being tried in either action. Newfoundland's objective was to obtain additional electricity supply and force Quebec to pay a higher price for Churchill Falls power. The issue continued unresolved in the 1980s.

Drilling activity in Canada

Oil and gas drilling activity to the end of December resulted in 9,102 well completions for the year in Canada, an all-time record and considerably above the previous record of the 7,634 wells which had been completed in 1979. In 1981, the total declined to 7,102 well completions. A forecast of drilling activity by the Canadian Association of Drilling Contractors early in 1980 had estimated quite accurately the total for 1980 but had noted that, by the end of the year, the industry would have a capacity to drill nearly 11,000 wells per year and had commented on the possibility of a surplus of equipment. Even before the downturn of the early 1980s, the emerging natural gas surplus and the lack of growth in gas exports to the U.S. were indications that the drilling industry was overbuilding. The decline to the post-1980 low in 1982 of 6,449 well completions created major problems for the drilling and oilfield service industry which did not begin to recover until the mid-1980s. Sharply declining world oil prices in 1986 quickly reversed the recovery trend.

1980 energy program and legislative initiatives carried forward into 1981-82

At the end of 1980, initiatives were being taken to implement the National Energy Program although negotiations were to continue with the oil and gas producing provinces through to September 1981 before an agreement was reached on oil pricing and related matters. Early priority was given to oil and gas industry incentives through the Petroleum Incentives Program (PIP); to oil substitution through the Canada Oil Substitution Program (COSP); to new conservation initiatives through an expanded Canadian Home Insulation Program (CHIP) with the objective of upgrading 70% of Canadian houses by 1987; to renewable energy programs, particularly solar and biomass; to the Canadianization objective; to several special Atlantic Canada initiatives; and to a large legislative program required for the full implementation of the many new policies and programs. The following listing of legislation carried forward from the 1980 initiatives provides a record of its scheduling and finalization in 1981 and 1982:

Bill C-48 - An Act to regulate oil and gas interests in Canada lands and to amend the Oil and Gas Production and Conservation Act

1st. reading - December 9, 1980
Royal Assent - December 18, 1981

Bill C-60 - An Act to amend the National Energy Board Act

1st. reading - February 10, 1981
Royal Assent - December 18, 1981

Bill C-75 - An Act respecting a home insulation program for certain provinces in Canada

1st. reading - June 29, 1981
Royal Assent - June 30, 1981

- Bill C-76 - An Act respecting a home insulation program for certain Maritime provinces in Canada
- 1st. reading - June 29, 1981
Royal Assent - June 30, 1981
- Bill C-77 - An Act respecting oil conservation and the substitution for oil of other energy sources
- 1st. reading - June 29, 1981
Royal Assent - June 30, 1981
- Bill C-87 - An Act to amend the National Energy Board Act (No. 2)
- 1st. reading - December 18, 1981
Royal Assent - December 18, 1981
- Bill C-101 - An Act to amend the Petro-Canada Act
- 1st. reading - April 5, 1982
Royal Assent - June 29, 1982
- Bill C-102 - An Act to amend the Department of Energy, Mines and Resources Act
- 1st. reading - April 5, 1982
Royal Assent - June 29, 1982
- Bill C-103 - An Act to amend the Petroleum Administration Act and to enact provisions related thereto
- 1st. reading - April 6, 1982
Royal Assent - July 7, 1982
- Bill C-104 - An Act respecting petroleum incentives and Canadian ownership and control determination and to amend the Foreign Investment Review Act
- 1st. reading - April 7, 1982
Royal Assent - June 29, 1982
- Bill C-105 - An Act to amend the Canada Business Corporations Act
- 1st. reading - April 7, 1982
Royal Assent - July 7, 1982
- Bill C-106 - An Act respecting energy monitoring and to amend the Energy Supplies Emergency Act, 1979 and the Oil Substitution and Conservation Act
- 1st. reading - April 7, 1982
Royal Assent - July 7, 1982
- Bill C-107 - An Act respecting motor vehicle fuel consumption standards
- 1st. reading - April 7, 1982
Royal Assent - July 7, 1982

Bill C-108 - An Act to amend the National Energy Board Act
(No. 3)

1st. reading - April 7, 1982
Royal Assent - July 7, 1982

Bill C-116 - An Act to establish the Cooperative Energy
Corporation and the Cooperative Energy
Development Corporation

1st. reading - June 8, 1982
Royal Assent - July 7, 1982

**Energy
Legislation**

The Appendix on Energy Legislation documents energy Legislation, as recorded in the Statutes of Canada, that was enacted in the 1970s and 1980s, through to 1986, including the above-noted bills which were directly relevant to the National Energy Program (NEP) as announced in October 1980.

THE YEAR 1981NEP
implemented

In January, the federal government proceeded with the full implementation of the National Energy Program (NEP) following its announcement on October 28, 1980 and some initial steps in November and December. Administration of the new energy policy framework was directed in particular to pricing and fiscal incentives, energy supply, energy conservation, oil substitution, R&D, and the enactment of implementing legislation. The pricing policies and new legislative instruments were designed to address both supply and demand objectives. The Program also included many supporting mechanisms involving large financial commitments by the federal government to supplement programs already in place at the federal and provincial levels. The new initiatives, planned at a total budget level of \$8.2 billion for the period 1980-83, were set out in terms of the following activity groupings:

| | Expenditures (\$ millions) |
|----------------------------|-------------------------------|
| Industry Incentives | 2,550 |
| Gas Bank | 440 |
| Oil Substitution | 1,620 |
| Conservation & Renewables | 1,150 |
| Special Atlantic Canada | 460 |
| Upgraders | 310 |
| R&D | 260 |
| Petro-Canada International | 200 |
| Future Initiatives | <u>1,200</u> |
| | \$8,190 |

These expenditures were planned in addition to existing programs and budgets of federal government departments and agencies having energy-related responsibilities which, in total, for 1980-83 were estimated at \$3,410 million. The total energy expenditure for this period was accordingly being estimated at 11.6 billion as the NEP got underway.

N.E. B.C. coal
development

In January separate agreements were signed with Quintette Coal Limited and Teck Corporation for delivery of 7 million tonnes of coking coal and 1 million tonnes of thermal coal to Japanese markets from two new mines being developed in northeastern British Columbia. The development of the new mines also involved a new townsite called Tumbler Ridge, a new rail spur to connect with the existing B.C. Rail line North of Prince George, upgrading of the existing railway lines to Prince Rupert, development of a new coal terminal at Ridley Island near Prince Rupert, and the acquisition of new coal unit train sets. In late 1981, it was announced that the federal government had approved a joint undertaking between the National Harbours Board (NHB) and Federal Commerce and Navigation Ltd. for

the construction and operation of the Ridley Island coal handling facilities, with the NHB assuming a 90 per cent equity position. At the same time, the conclusion of agreements with the coal shippers signalled the completion of agreements between industry and the federal and B.C. governments for the infrastructure required for this new coal development, with first shipments scheduled to begin by late 1983. Total cost of the mine development and related infrastructure -- townsite, rail and port -- was estimated at over \$2 billion.

**National Energy
Program in
review --
concerns**

By January, three months after the announcement of the National Energy Program (NEP), concerns had been expressed by representatives of the oil industry, the financial community and the Western Provinces regarding the expected impact of various provisions of the NEP on the oil industry and the economy at large. The industry had had expectations of drilling 10,500 wells in 1981 but early in the year had downgraded that estimate to about 6,000 wells. An estimate of the movement of 120 drilling rigs to the United States by April was also attributed to the investment effects of the NEP. The international oil companies were particularly critical of such Canadianization measures as retroactive provision for a 25 per cent interest in Canada Lands oil and gas discoveries. Most companies resisted the concept of the Petroleum and Gas Revenue Tax (PGRT) on net operating income from oil and gas production, and claimed that cashflow would be greatly reduced as a result of this and other tax measures. The Petroleum Incentives Program (PIP) did not meet with a great deal of favour on the part of the smaller companies who were doing most of their work in western Canada whereas PIP favoured frontier exploration, while the large international companies were critical because the program favoured Canadian ownership and control. The Canadianization program was criticized as having a negative impact on the balance of payments and from the point of view that the high cost of buying a foreign oil company would not yield any new oil. The federal government's attempt to increase its oil revenue share from 10 per cent to 26 per cent was seen as a measure to deprive industry of funds it would use for reinvestment. In general, there was concern about the cost of financing Canadianization, about the apparent discriminatory nature of taxes and exploration grants, and about the overall interventionist nature of the federal government's program and the related overburden of constraints and objectives of a regulatory nature. As a result of these and other criticism, the government implemented a number of modifications not only in 1981 but continuing through to 1984 when the new government, following its election in September, commenced phasing out most of the pricing and fiscal measures of the NEP.

**Dome Petroleum's
access to
PIP incentives**

On January 29, the Minister of EMR announced an agreement between Dome Petroleum Ltd. and the Government of Canada whereby a Dome affiliate, Dome Canada Limited, would obtain maximum benefits under the Petroleum Incentives Program (PIP). With a Canadian Ownership Rate (COR) of at least 75 per cent, Dome Canada received from Dome Petroleum its land for exploration and the subsequent development of interests earned, including lands on which discoveries had

been made. This agreement enabled Dome Petroleum, a foreign-owned corporation, to benefit through its 48 per cent ownership of Dome Canada, in the special incentives available to Canadian corporations under terms of the Petroleum Incentives Program.

**Forestry
Industry
Renewable Energy
Program (FIRE)**

In February, Treasury Board approved expansion of the Forest Industry Renewable Energy Program (FIRE) from \$103 million to \$288 million through to March 1986, and extension to all industrial commercial and institutional establishments with application to all types of biomass as well as municipal wastes. As of November 30, 1981, a total of 80 projects across Canada had been approved under this program since its inception in 1978. The program was designed to encourage the substitution of wood residues, and other biomass, for fossil fuels in the generation of energy. Financial incentives of 10 to 20 per cent of capital costs for fuel handling and burning equipment, and electrical generators if part of a regeneration installation, were available to industrial, commercial, institutional or similar organizations. The FIRE program was originally designed to provide financial incentives to the forest industry to use wood wastes in place of fossil fuel and was expanded as part of the National Energy Program announced in October 1980. Administrative details of the expanded program were announced in December 1981. In the period 1978-1981 grants totalling \$42.5 million were approved under provisions of the program.

**East Coast Oil
and gas hold
great promise**

In a presentation to the Standing Committee on Public Works and National Resources on February 10 when Bill C-48, the Canada Oil and Gas Act, was being reviewed, EMR's Resource Management Branch (now COGLA) presented an overview of oil and gas resource development progress in the East Coast offshore as perceived at that time. It was estimated that 6 trillion cubic feet of gas and 1 billion barrels of oil had been discovered, with the potential being very much greater. The Hibernia oil discovery off Newfoundland and the Venture gas discovery off Nova Scotia were considered as probably being "world-class" discoveries.

**NEB Act
amendment re.
pipeline routes**

An Act to amend the National Energy Board Act was introduced for first reading in the form of Bill C-60 on February 10 and, following Parliamentary approval, received Royal Assent on December 18, 1981. The bill was designed to establish new procedures for determining the route of a pipeline, acquisition of the right of way, and to deal with compensation and damage claims resulting from the building of a pipeline. Land acquisitions and compensation had been previously governed by the Railway Act. Bill C-87, accompanying Bill C-60 made provision for up to six temporary members of the NEB to perform new responsibilities outlined in Bill C-60 relative to the hearings process.

**Petro-Canada
acquisition of
Petrofina --
financed by COSC**

On February 3, the federal government expressed approval of Petro-Canada's acquisition of Petrofina Canada from Petrofina S.A. of Belgium which would give Petro-Canada retail outlets across Canada. In April, the federal government announced that it would implement, effective May 1, the Canadian Ownership Special Charge

(COSC) on sales of petroleum products and natural gas to cover most of the costs of the acquisition. The total cost of all outstanding shares as purchased by Petro-Canada Inc. on May 2 was \$1.46 billion. An additional \$350 million was set aside to cover financing costs which would depend on the timing of share tendering during the 25 month acquisition period. Since Petro-Canada was faced in early 1981 with a \$2 billion debt load (\$1.5 billion of which was the remaining debt of the Pacific Petroleum purchase in 1978), the government decided to finance 85 per cent of the Petrofina purchase price by the Canadian Ownership Special Charge (COSC), rather than asking the national oil company to assume further debt. It was estimated that the COSC, set at \$1.15 a barrel (0.8 cents a litre), on all oil processed or used domestically in Canada and 15 cents per thousand cubic feet on natural gas used in Canada, would be sufficient to cover 85 per cent of the Petrofina acquisition cost in no more than two years. On May 13, 1981 Petro-Canada announced the establishment of a new, national refining and marketing subsidiary, Petro-Canada Products Ltd., resulting from the successful acquisition of Petrofina. With the acquisition of Petrofina, Petro-Canada increased its oil production by 35 per cent to 15 400 cubic metres (96,900) barrels a day, its natural gas production by 22 per cent, and it added 15 000 cubic metres (95,000 barrels) a day of refinery capacity and over 1000 retail outlets in Eastern Canada. Petro-Canada also acquired some 8 million cubic metres of proven oil reserves and 20,000 cubic metres of proven natural gas reserves along with Petrofina's interests in exploration and development off the east coast of Canada and in the Arctic, and its 5 per cent interest in the Syncrude oil sands project.

**Accelerated
tax write-offs
for conservation
equipment**

Provision was made in February to expand the coverage of the two-year accelerated tax write-off program for specified conservation equipment, with the provision being extended to the end of 1984. Conservation equipment included in Class 34 under Schedule II (Capital Cost Allowances) of the Income Tax Regulations could be written off in two years with a maximum write-offs of 50 per cent in each year. New categories added to the list of eligible equipment included equipment used for generating electricity at small hydroelectric sites, and equipment used in a wide range of active solar heating systems. The changes complemented other off-oil program initiatives of the NEP and were designed to encourage energy conservation and promote the development of solar energy programs.

**Institute for
Radiation
Safety**

In February, the federal and Ontario governments jointed the Ontario uranium industry to provide \$1.5 million for the establishment of the Canadian Institute for Radiation Safety (CAIRS). The Institute at Elliot Lake, Ontario, was to serve as a documentation and public information centre on radiation safety; train personnel in radiation safety and provide special services for those engaged in radiation-risk employment; improve radiation safety devices and practices; and engage in scientific investigations concerning radiation safety in the uranium and other industries in which radiation risks are involved.

**Petroleum
Incentives
Program (PIP)**

In February, a new phasing-in approach to the Petroleum Incentives Program (PIP) was announced, enabling more companies to be immediately eligible for the maximum incentive payments for exploration and development. PIP had been announced in October 1980 as part of the NEP and a document entitled "The Basic Rules - A Framework" had been released in December 1980. Further details on the design and implementation of the program were set out in a policy framework paper issued in June 1981 entitled "Petroleum Incentives Program". The Program made provision for cash incentives for petroleum exploration and development and replaced the former "super depletion" allowance for frontier exploration, and would also gradually replace depletion allowances. Maximum PIP grants were to be available in 1981 and beyond to Canadian-controlled companies with at least 65 per cent beneficial Canadian ownership as measured by the Canadian Ownership Rating (COR). The eligibility standard was to rise by two percentage points annually to reach 75 per cent in 1986, the level originally proposed for 1981 for maximum grants under the NEP. Other measures were implemented to give maximum grants to companies while steadily increasing Canadian ownership over a period of five years. PIP grants ranged from a low of zero, for the lowest COR category for exploration in Provincial lands, to a high of 80 per cent of eligible exploration expenditures for the highest COR category in the Canada lands. The PIP grants were scaled to reflect the need for, and the high cost of, active exploration of promising oil and gas prospects in northern frontier and offshore regions. Expenditures incurred in exploring for oil and gas in the North and offshore were entitled to an incentive equal to 25 per cent of eligible exploration expenses, with additional PIP incentives depending upon the Canadian ownership and degree of Canadian control of the applicant, the location of the expenditure and the type - exploration, development or eligible assets. PIP came under criticism because of the strong bias towards northern exploration at the expense of exploration in western Canada and because of the concern that some frontier exploration programs, financed by large grants, were not as well planned as they should have been.

**Alberta's
concern about
the NEP**

In an address given in Montreal on February 24, the Premier of Alberta spoke out strongly against the National Energy Program (NEP) which had been implemented by the federal government in October 1980. He expressed concern about the pricing provisions of the NEP, with the oil price being determined within Canada rather than being linked to the international price. The Petroleum and Gas Revenue Tax on oil production, and taxes on natural gas, were other causes of concern. The NEP was perceived as an action on the part of the federal government to "move in and take over" the control of western Canada's oil and gas reserves.

**Alberta oil
cut-back leads
to Special
Compensation
Charge**

On March 1, the Alberta government proceeded with the implementation of its intention announced on October 30, 1980 (two days after the federal government's introduction of the NEP) to reduce Alberta's oil production by 60,000 barrels a day. The production cut-back, to proceed in three, 3-month stages of 60,000 barrels a day, was in retaliation against the federal government's NEP initiatives. As the production cut-back commenced, the

federal government announced that the price of all petroleum products would be increased by an average of 0.5 cents per litre, with the increase being in the form of a special temporary levy, Special Compensation Charge, to meet the costs of subsidizing additional imports to offset the 60,000 barrel a day reduction in domestic production. The levy would be used to finance special compensation payments to refiners in eastern Canada having to import additional supplies of international crude oil at the higher offshore prices. It was estimated that an additional foreign exchange requirement of about \$240 million would result from a 3-month domestic production reduction of 60,000 barrels a day, and \$1.7 billion if the cutback continued throughout 1981. The Special Compensation Charge was increased in June when Alberta increased the cut-back to 120,000 barrels a day but ended as a result of the agreement reached on September 1, 1981 by the federal and Alberta governments on energy pricing and taxation.

Energy R&D
expenditure
increases
- March and
July

On March 4, the federal government announced approval of supplementary R&D expenditures in the amount of almost \$2.3 million for 1980-81 as a first step in accelerating the energy R&D program. R&D expenditures in 1980-81 totalled \$174 million. On July 31 further increases of \$35 million were announced and total expenditures for 1981-82 were budgetted at \$206 million. Priority was to be given to developing new liquid fuel alternatives to gasoline, to increasing the efficiency of energy use in all sectors of the economy, to developing environmentally acceptable alternatives to oil and gas, and to ensuring the continuing development of conventional energy.

Federal response
to NEP criticism

During the early months of 1981 the federal government made a number of public responses to criticisms by industry and some of the western Provinces of the NEP. In an address in Calgary on March 3, the Minister of EMR responded to the Premier of Alberta's Montreal address of February 24 and expressed concern about the oil production cutbacks initiated by Alberta and the Alberta decision to withhold approval on proposed oil sands plants until agreement was reached on an oil pricing schedule. The federal Minister denied that the NEP represented a resource grab, noting that the federal revenue share that had fallen below 10 per cent would still be less than one quarter over the 1980 to 1983 period. It was also maintained that the NEP was exercising the right of the national government to price oil in international trade and to impose new taxes believed to be within the federal government's constitutional powers. There was no question that the provinces owned and controlled their resources. Much of the debate between the federal and Alberta governments during 1981 related to the expectation of much higher oil prices, the concern on the Alberta side being that it would be deprived of much of the potential revenue while the federal estimate in March 1981 was claiming that the Alberta government, under NEP provisions, would receive at least \$100 billion over the following 10 years from oil and gas alone, more than all the other provinces combined for

all of their resources since 1867. The revenue sharing issue was exacerbated by the 1980-81 oil price expectations, which were never realized.

**EMR Regional
Offices -- CREOs**

On March 20, the federal government announced that 12 regional Conservation and Renewable Energy offices would be opened across Canada by the Department of Energy, Mines and Resources. A major part of the responsibility of the new offices was to coordinate the regional aspects of major conservation and renewable energy programs emanating from the NEP. Within the year an office was operating in each province and territory, and dealing with energy conservation, oil substitution, renewable energy, and R&D programs.

**OICP savings
in Quebec
and other
benefits**

In March, the federal government announced that it had spend \$4.8 billion through its Oil Import Compensation Program (OICP) in support of oil pricing provisions for Quebec. The difference early in 1981 between the imported oil cost of \$43.50 a barrel and the price of \$24.90 being paid by Quebec consumers was being made up by the federal government through the OICP. Under the NEP, the federal government had earmarked over \$1 billion to be spent in Quebec over the following four years to promote research, energy conservation, and to replace oil by other forms of energy. The emphasis throughout Canada as in other industrial countries at this time was on energy conservation and on oil substitution programs.

**Fluidized-bed
combustion for
greater coal use**

In March, the federal government initiated a major coal utilization project under the NEP Special Atlantic Initiatives coal utilization program to demonstrate the effectiveness of fluidized-bed combustion in the use of low-quality fuels in boilers of heating systems while suppressing gaseous emissions of pollutants that cause acid rain. The project, installed at the Canadian Armed Forces Base at Summerside, P.E.I., had been investigated by EMR and the Department of National Defence in the previous four years. It was designed to use high-sulphur coal from Cape Breton and wood chips from P.E.I. A utility-scale plant was being planned for Cape Breton and other applications in western Canada were being considered, all directed towards the more efficient and environmentally-acceptable use of lower grade fuels and the replacement of oil.

**Restrictive Trade
Practices
Commission
inquiry on the
oil industry**

In March, the report of the Director of Combines Investigation, under the title of "The State of Competition in the Petroleum Industry", was made public following an extensive inquiry which had been initiated in 1973 (see note for February 1973). The Director concluded that there were conditions and practices in each sector of the petroleum industry that were undesirably monopolistic and restrictive. He proposed measures to the Restrictive Trade Practices Commission that, in his view, were required in order to deal with the monopolistic conditions and practices in restraint of Trade that he reported he had found. The Restrictive Trade Practices Commission then commenced a hearing under section 47 of its Act, relative to the Director's study of the 1958-1973 period, and also concerning post-1973 oil price and marketing developments.

"The extreme and adversarial nature of some of the Director's criticisms and conclusions, and the way in which the Director had publicized them, resulted in the proceedings before the Commission being of an adversarial nature throughout". (Restrictive Trade Practices Commission report of May 16, 1986.) Among the Director's findings was the allegation that Canadian consumers had been overcharged some \$12 billion by the oil industry in the 1958-1973 period and that the overcharge was continuing. Following its extensive hearings across Canada, commencing in October 1981, the Commission reported in May 1986 to the Minister of Consumer and Corporate Affairs and made 12 recommendations to bring about the better functioning of the petroleum market. In its inquiry, the Commission found no proof that Canadian petroleum companies had overcharged consumers by \$12 billion and no evidence of collusion in any sector of the petroleum industry. The 700-page report of the Commission entitled "Competition in the Canadian Petroleum Industry" and the seven-volume "Statement of Evidence and Material" referred to as the "Green Book" submitted by the Director of Combines Investigation to the Commission constitute an important record of oil marketing matters in Canada for the period 1958-1986.

Natural gas pricing policy

In April, the Minister of EMR issued a statement to implement that part of the National Energy Program (NEP) relating to natural gas prices in the domestic market east of Alberta. Prices were to be set in accordance with the following guidelines:

- The existing TransCanada Pipelines Ltd. eastern price zone was to be extended to include the area to be served by the planned eastern extension of the pipeline system to the Maritimes;
- The natural gas price in markets east of Toronto would be the same as the price at the Toronto city-gate;
- Natural gas prices in zones west of the TransCanada eastern zone would be linked to the Toronto city-gate price, but would be somewhat lower recognizing lower transportation costs;
- There would be a uniform imputed border price for all natural gas produced in Alberta and consumed in Canada outside that province.

All prices were to be prescribed by the Governor-in-Council, on the advice of the National Energy Board, under Part III of the Petroleum Administration Act rather than being derived from rates developed under Part IV of the NEB Act. The NEB would be periodically requested by the Minister, under Part II of the NEB Act, to review and report on matters associated with the pricing of natural gas sold in the domestic market. There was provision in the NEP for the setting aside of \$500 million to assist in the expansion of the gas pipeline system east of Montreal. At the time of the announcement of natural gas pricing policy for the domestic market, an increase in the export price from \$US4.47 per MMBTu to \$US4.94, effective April 1, was also announced.

CHIP expanded

In April, the Canadian Home Insulation Program (CHIP), which had been initiated in 1977, was expanded from the original \$80 million to \$265 million annually and the program was extended to 1987. While the eligibility date for houses in most regions remained at the year 1961, it was brought forward for houses in Newfoundland, the Northwest Territories and the Yukon to cover all houses built prior to September 1, 1977. By the end of 1981, federal grants totalling \$420 million, on 1.15 million applications, had been made under CHIP, and 20 per cent of all eligible homes had participated in the program.

Federal Energy Management Programs

In April, the Government of Canada initiated new measures to reduce its own dependance on oil through retrofit and off-oil conversion projects in a number of federal office building across Canada. Initiated in 1975/76, the federal government's internal energy conservation program had by the end of the fifth year, in March 1981, resulted in an energy consumption reduction of 17.6 per cent on an adjusted base from 1975/76 levels. Energy savings involving all government buildings and vehicles were in the order of \$90 million in the fifth year.

Marine and aviation fuel compensation recovery charge

Further to the budget announcement of October 28, 1980, the Minister of EMR announced on April, 23 that, effective May 1, 1981, a marine and aviation fuel compensation recovery charge would be applied on all marine and aviation fuels consumed by domestic and foreign carriers with international destinations. The measure provided for the recovery of some of the compensation paid by the federal government on oil imported to replace transportation fuels exported from Canada. Compensation payments for high-priced foreign crude imports allowed for the maintenance of lower domestic price levels for all petroleum products as long as they were used within Canada. The compensation recovery charge on aviation fuel was discontinued in January 1982.

Canada Oil Substitution Program (COSP) inaugurated

On May 25, the Minister of EMR announced the inauguration of the Canada Oil Substitution Program (COSP). It had been included in the provisions of the NEP, as introduced in October 1980. COSP provided federal taxable grants of up to \$800 to homeowners to assist in the change of heating systems from oil to more abundant alternative fuels. Assistance for off-oil conversions was in the form of grants of 50 per cent of the cost of converting an oil burning furnace to natural gas, electricity, propane and renewable energy sources such as wood and solar - up to a maximum of \$800. Because there was no ready access to natural gas and eligible electricity in P.E.I., Newfoundland, N.W.T. and the Yukon, consumers there could apply the grants to furnace retrofits, insulation and other conversion-related investments, as well as furnace conversions to renewable sources. During 1981 over 110,000 applications for grant assistance were received and payments totalling \$51.7 million were made for conversions from oil to natural gas and electricity. Under contract with EMR, some 40 gas and electric utilities across Canada administered the part of the COSP relating to those energy sources. In 1981 it was expected that over \$1.9 billion would be contributed to the conversion of some

2.4 million furnaces over the ten-year planned life of the COSP. On November 9, 1984, the newly-elected government announced that the COSP would be ended, effective March 31, 1985, the major purposes of the program having been achieved.

Lepreau nuclear
plant - further
federal
assistance

On May 28, the federal government committed itself to additional financial support for the construction and operation of the Point Lepreau nuclear power station in New Brunswick. Construction of the 630-megawatt unit had begun in 1974 with the federal government agreeing to provide loans covering 50 per cent of the estimated constructed costs of \$684 million and with a maximum of \$350 million set on this commitment. Construction delays had put the expected in-service date back to 1982, from 1980, and raised cost estimates to \$1.25 billion. The financial support announced in May 1981 took two forms: the federal government agreed to forgive interest already paid on the \$350 million loan advanced to New Brunswick Electric Power Commission through Atomic Energy of Canada Limited, and also agreed that interest would not be payable until the earlier of the in-service date or October 8, 1982. This represented a cost to the federal government of \$102 million over three years. As part of this new financial support arrangement, the federal government further agreed that loans would be made available to N.B. Power at Crown corporation rates to lessen the impact on the utility's revenue requirements of possible performance problems that might reduce the nuclear unit's output in the early years of operation up to 10 years. Each year these loans would be \$650,000 for each per cent that the power availability was less than 75 per cent of capacity, with a maximum annual loan of \$48.75 million. Repayment would begin when availability exceeded 75 per cent in any year. When completed, Lepreau was expected to account for about 18.5 per cent of New Brunswick's projected total installed generating capacity of 3,400 megawatts.

Canertech

Canertech, a Crown corporation designed to function as a venture capital development company for conservation and renewable energy technology, was established in May, with its head office in Winnipeg. Its initial \$20 million budget was to be directed into work to support Canadian businesses engaged in renewable energy development and conservation, either through joint ventures or equity investments. By the end of 1981, plans were being made for Canertech to be the lead agency in the development of a pilot plant and related R&D programs to demonstrate new processes to extract ethanol from vegetation.

Propane Vehicle
Grant Program

The federal government's Program Vehicle Grant Program was announced on June 2 and payments under the program were initiated in September. During the year safety standards for new propane and compressed natural gas vehicles were developed and published in the Canada Gazette on January 2, 1982. Taxable grants of up to \$400 for each vehicle were made available to encourage conversions from gasoline to propane, the grants being restricted to commercial fleet conversions at the time. In addition, the federal government set a target to convert 8000 of its own vehicles to propane over the following five years.

Energy Security Bill

On June 22, the Minister of EMR tabled in the House of Commons, in draft form, legislative proposals for an Energy Security Bill representing the means for giving legislative effect to a number of elements of the NEP. The proposed legislation was designed to establish the Petroleum Incentives Program (PIP), a new incentives program to encourage petroleum exploration and development; establish the legislative framework for guidelines concerning Canadian ownership and control; allow the government to collect information in accordance with NEP objectives; provide legislative authority for a number of petroleum and natural gas pricing, compensation and tax initiatives; authorize the capital necessary to expand the role of Petro-Canada and establish a Canadian Ownership Account to help finance acquisitions. The draft bill was made public at this time for comment and discussion and the legislation was given first reading on February 26, 1982, as Bill C-94, the Energy Security Act 1982. It was subsequently changed into eight new energy bills and introduced for first reading in the House of Commons on April 7, 1982 (see note for April 1982).

NEB Act amendments for power line route expropriation

On June 22, proposed amendments to the National Energy Board Act were announced which would broaden the Board's authority to permit expropriation for designated interprovincial and international electric power lines linking a producer of electricity with consumers elsewhere in Canada or on the continent. The modifications would parallel provisions relating to pipelines. Relevant provisions were included in the energy legislation tabled in the House of Commons in April 1982.

Hydroelectric small-scale plant-Roddickton

The Roddickton small-scale hydroelectric generating plant was officially opened in June at White Bay, Newfoundland, with a 425-kilowatt capacity. The plant was designed to show the potential for using indigenous energy sources to replace oil. The \$1.2 million plant, largely financed from federal funds, was the twenty-second small hydro plant built over the years in Newfoundland, that province being a pioneer in the field of small-scale hydro development.

Oil price increase; natural gas tax increase

Effective July 1, the wellhead price of conventional crude oils rose by \$1/barrel (\$6.3/cubic metre) to an average of \$18.75/bbl (\$118.0/cubic metre). The related increase of 0.7 cents per litre on petroleum products was passed through to consumers on August 30. The excise tax on domestic sales of natural gas and gas liquids, introduced on November 1, 1980 at an initial rate of 28 cents per GJ, was increased by 14 cents on July 1.

Lower Churchill Development Corporation

In July the federal and Newfoundland governments invested an additional \$10 million in the Lower Churchill Development Corp. (LCDC), the investment of each government being in proportion to the 51% Newfoundland/49% Canada equity participation in the Corporation. The new investment was directed to the study of the proposed transmission cable crossing of the Strait of Bell Isle between Labrador and the Island of Newfoundland. The LCDC was established in 1978, and the ultimate development of the hydroelectric potential of the lower Churchill River

remained a high priority to reduce dependence on foreign oil and to contribute to the achievement of Newfoundland's economic development goals.

**CANMET
hydrocracking
process**

In July, the Department of Energy, Mines and Resources (EMR) and Petro-Canada Exploration Inc (PEX) signed an agreement which extended and revised a 1979 agreement under which PEX obtained the rights to use the new hydrocracking process which had been invented and developed in EMR's Canada Centre for Mineral and Energy Technology (CANMET). Under the terms of the agreement, PEX was to develop the CANMET process to the point of commercial application by 1984. The CANMET process uses a 'hydrogen addition' method in upgrading bitumen and heavy oil that produces 10-12 per cent more distillate oil than 'carbon rejection' methods such as delayed coking and fluid coking, and it eliminates the waste by-product coke which results from those processes. PEX's responsibilities under the new agreement included the development of a plant to demonstrate the hydrocracking process; the design of a full-scale commercial plant; and the development of a complete marketing and licensing package for the installation of the process throughout the petroleum industry.

**Romania purchase
of CANDU reactor**

In July, contractual agreements were concluded between Atomic Energy of Canada Limited and the Romanian State Corporation, Romenergo, relative to the construction of the Cernavoda Candu nuclear reactor. This marked the first international sale for Canada since 1979 when Romania ordered its first CANDU reactor.

**NEP report on
energy supply
and demand**

In July, the National Energy Board report on Canadian energy supply and demand found that the supply of domestic oil could not be significantly increased in the short term although conservation would help show the decline in available reserves. At that time, the Board found that established conventional reserves would amount to about 10 years of supply at the then prevailing production rate. Most companies submitting evidence during the hearings leading to the Board's report believed that, although the NEP would reduce demand for oil, it would reduce supply even more and that oil self-sufficiency could not be reached by the NEP-target date of 1990.

**Frontier
exploration -
Dome, Petro-
Canada, Esso,
Gulf, Mobil**

In July, Dome Petroleum commenced its sixth year of exploratory drilling in the Beaufort Sea, with the drilling season lasting only from mid-July to October 31 in 1981. Exploration in the frontier regions of the Arctic Island, Beaufort-Mackenzie area, and the East Coast offshore by a number of companies remained in 1981 at the high level experienced in 1980 as the industry continued to focus on promising areas. A total of 19 rigs were active in these regions and total exploration expenditures during 1981 amounted to about \$675 million, nearly \$200 million of which was contributed by Petro-Canada. Dome remained optimistic about the production prospects of the Beaufort Sea. Esso Resources and Gulf continued active exploration in the shallow waters of the Beaufort Sea using artificial islands as drilling platforms. Panarctic operated in the Arctic Islands region. Off the east coast Mobil Oil and

Petro-Canada were the principal operators. These and other companies held high expectations of early production prospects, but by the mid-1980s, largely as the result of rapidly declining world oil prices, most exploration programs in the frontier regions had been discontinued.

**Petro-Canada
International
established**

In August, Petro-Canada International was established as a subsidiary of Petro-Canada. The mandate given to the new company was to offer Canadian technology and expertise to assist developing countries in becoming more energy self-reliant by reducing or eliminating their dependence on imported oil. The company was to act as a direct delivery mechanism for Canadian development assistance by participating in exploration for hydrocarbon resources, conducting pre-exploration and related studies, and providing technical assistance and training in hydrocarbon exploration and production. It was also to act as an executing agent for other developing assistance institutions including the Canadian International Development Agency (CIDA) and the International Bank for Reconstruction and Development (IBRD). Under the NEP, funds of \$250 million were made available for PCI purposes for the four-year period ending 1984-85.

**Canada Oil and
Gas Lands
Administration
(COGLA)
established -
frontier outlook
promising**

On August 17, the Administrator of the Canada Oil and Gas Lands Administration (COGLA) was appointed and that organization assumed the duties of resource management branches in EMR and in the Department of Indian and Northern Affairs, with the new Administrator being responsible to the Ministers of the two Departments relative to the development of oil and natural gas in the Canada Lands. The Administrator's main responsibility on behalf of the two Ministers is to obtain maximum benefits for Canadians from oil and gas development in the North and off the East and West Coasts, and to ensure that Canadian requirements are met in terms of ownership, employment, industrial benefits, and protection of the physical and social environments. In mid-1981, it was being estimated that Canada Lands exploration and development activities would involve direct expenditures by oil and gas companies averaging \$4 billion a year in the 1980s, an estimate made at the height of exploration activity before the rapid decline in world oil prices and in exploration, was foreseen.

**Coleson Cove
coal-fired
proposal**

In August, the federal and New Brunswick governments announced agreement on a \$1.2 million study of the feasibility of converting the 1000 MW oil-fired Coleson Cove electrical generating plant to a partially or totally coal-fired operation. This was the first project under the NEP Utility Off-Oil Fund which provided contributions of up to 75 per cent of the cost of environmentally acceptable conversions of oil-fired electrical plants to coal. It was estimated at the time that Canada would save over \$100 million annually in import compensation payments if the Coleson Cove plant were to be completely converted to coal. However, as a result of the removal of oil compensation payments for fuel used for generating electricity exports, N.B. Electric Power Commission had to renegotiate an export contract and the federal government agreed to provide compensation of up to \$25 million

annually for five years to cover the loss of revenue. As a result of a profitable alternative use of the plant within the N.B. system, the compensation was limited to \$15.5 million. During 1981 and 1982 a study was undertaken to determine if conversion to coal from oil would be practical and economic in all respects, including those relating to environmental control.

**Nuclear energy
discussion
papers**

In August, 16 discussion papers were released on a broad range of nuclear energy and related matters ranging from electrical demand to uranium mining and nuclear wastes. The papers were products of an internal review by the federal government of the country's nuclear policy. The review was designed to stimulate a better understanding of the potential of nuclear energy to enhance Canada's energy supply position, and to provide a factual basis for the discussion of the broad range of issues related to the supply and use of nuclear energy.

**Radioactive
waste disposal**

In August, the federal and Ontario governments announced the procedure to be followed in continuing research efforts on safe means for the permanent disposal of nuclear wastes from reactor operations. Emphasis would be on underground disposal, placing wastes deep within stable rock formations. The program would include public hearings leading to acceptance of a disposal method. At this time the two governments agreed on two new research areas in northern Ontario where research would be done on the properties of granite and on groundwater movements. A planned 10-year research program would not involve the use of radioactive wastes. In September, the federal government announced that a \$13.8 million underground research laboratory would be established near Lac Du Bonnet, Manitoba, the first such laboratory to be established below the water table in undisturbed granite. The research and development program on permanent passive disposal of irradiated nuclear fuel wastes proceeded under the direction of Atomic Energy of Canada Limited.

**National Energy
Program in
review --
concerns**

During the year, representatives of the oil industry and other business interests continued to make their concerns known regarding the effect of the National Energy Program on the oil industry and the economy. In August, the Canadian Chamber of Commerce presented a brief to the federal government on views representative of 600 local Board of Trade and Chambers of Commerce across Canada who had considered energy matters at the 1981 Chamber of Commerce Annual Meeting. Included in the recommendations made at that time was one calling for governments to develop an agreed system which would be effective in moving domestic crude oil prices to a free market valuation regardless of further changes within the following three to five years, and for governments to also adopt a policy of moving Canadian energy prices towards world levels. It was further recommended that the significant tax revenues that would accrue to governments as prices rose should be directed, not to subsidizing consumption and new or expanded government programs, but rather to the reduction of government deficits or to productive investment. Temporary adjustment assistance to energy-intensive firms, to help finance more productive energy-efficient equipment

or to research and development for alternative sources of energy, were considered to be reasonable uses for such government funds. The Chamber was of the view that a policy that accepted the need for significantly higher energy prices would lead the Canadian economy out of its existing "stagflation phase" and spur good economic performance based on energy investment. The Canada-Alberta agreement on energy pricing and taxation was completed shortly after but rising interest rates, a softening of international oil prices, and a general world recession soon made conditions more difficult in the Canadian energy economy.

**Federal-Alberta
agreement on
energy pricing
and taxation**

On September 1, a Memorandum of Agreement between the Government of Canada and the Government of Alberta relating to Energy Pricing and Taxation was signed by the Prime Minister and the Premier, establishing a taxation and pricing regime for oil and gas produced in Alberta. The Agreement was signed to provide for the gradual rise in the price of petroleum and its products under a "made-in-Canada" formula that would keep Canadian prices below international levels yet provide governments and industry with revenues to promote oil self-sufficiency by 1990; the favourable pricing of natural gas in relation to oil, making it an attractive substitute for consumers; higher prices for future oil discoveries in recognition of their risk and high-cost nature; and a revenue sharing program giving an increased share of oil and gas revenues to the federal government in view of its responsibility for the management of national programs. The Agreement established in broad terms a two-tier pricing system for oil produced in Canada and was scheduled to remain in force until December 31, 1986. The Agreement was spelled out in terms of the following sections: Prices for Conventional Old Oil, New Oil Reference Price, Natural Gas Prices, Natural Gas Liquids, Petroleum Compensation Charge, Natural Gas and Gas Liquids Tax, Petroleum and Gas Revenue Tax and Incremental Oil Revenue Tax, Income Tax Changes, Alberta Royalties and Freehold Mineral Tax, Alberta Royalties on Alsands and Cold Lake heavy oil, Petroleum Incentives Program, Oil Sands Approval Process, Fiscal Undertakings, General Conditions, and Revenue Estimates.

**Federal-Alberta
agreement based
on faulty
pricing scenario**

The expectations held in September, at the time of the signing of the Federal-Alberta agreement on energy pricing and taxation, related to continuing increases in the international oil price. As a result, it was forecast that total oil and gas revenues would amount to \$212.8 billion in the period 1981-1986, with the federal and Alberta governments' shares being 25.5% and 30.2%, respectively, and industry's share, 44.2%. This revenue expectation was based on projections of oil price schedules, with the price of 'old' oil rising from \$18.75 in September 1981 to \$57.75 per barrel by July 1, 1986, and the New Oil Reference Price (NORP) increasing from \$45.92 on January 1, 1982 to \$77.48 per barrel by July 1, 1986. (Following the price declines of the first half of the 1980s, the world oil price in 1985 was only \$US 28 per barrel and in 1986 it went as low as \$10). A supplementary announcement to the Memorandum of Agreement specified that the overall price of 'old' oil would not exceed 75 per cent

of the international price. Both the New Oil Reference Price (for oil sands, frontier oil and new discoveries) and the price ceiling for 'old' oil specified in the agreement were tied to the world prices. The natural gas price, in turn, was also linked with international oil trends. While the agreement established a fixed price for natural gas at the Alberta border, with a scheduled increase of 25 cents per Mcf every six months, the Toronto city-gate price was to be maintained at 65 per cent parity with oil through federal adjustments in the Natural Gas and Gas Liquids Tax (NGGLT). The faulty price assumptions at the base of the federal-Alberta agreement began in 1982 to cause serious problems in the administration of the NEP and in federal-provincial energy relations.

Federal-B.C.
agreement on oil
and gas pricing
and fiscal
matters

On September 24, the Prime Minister and the Premier of British Columbia announced that the issues outstanding between the two governments concerning oil and gas pricing and related fiscal matters had been resolved. The principal features of that accord were the application of the New Oil Reference Price to new conventional oil produced in B.C.; the agreement of the B.C. government to pay outstanding taxes in respect of the Natural Gas and Gas Liquids Tax and the Canadian Ownership Charge; and the establishment of an export tax on natural gas at a rate of zero for the purpose of the Natural Gas and Gas Liquids Tax. The tax and price levels were the same as in the Federal-Alberta Agreement; the major distinction between the two Agreements centred on the funding and administering of the Petroleum Incentives Program (PIP) by the federal government in B.C. while the Alberta government had opted to be fully responsible for PIP in that province. When the Agreement with B.C. was reached, it was expected that oil and gas revenues related to B.C. production would total \$12.3 billion over the period 1981-86, with the federal and B.C. shares being 26% and 37.4%, respectively, and the industry share, 36.6%.

Pre-build sections
of Alaska
Highway gas
pipeline

The western leg of the pre-build portion of the Alaska Highway Natural Gas Pipeline opened on October 1. The pre-build section consists of two legs designed to carry surplus Alberta natural gas to the western and midwestern United States. The National Energy Board had approved construction of the pre-build pipelines in July 1980 and gas exports through the two legs of the system. Construction of the eastern leg was scheduled for completion in September 1982.

Alternative
liquid fuels

In October, a comprehensive plan for research and development on alternative liquid fuels, covering all stages from production and processing to distribution and use, was published. The plan incorporated major elements on co-processing of coal and bitumen, liquid fuels from wood, compressed natural gas, and investigation of the environmental impacts of new liquid fuels. Programs were commenced in these areas with a budget commitment of \$12 million for 1981/82.

Federal-
Saskatchewan
agreement
relating to
energy pricing
and taxation

On October 26, the Prime Minister and the Premier of Saskatchewan announced that issues outstanding between the two governments concerning oil and gas pricing and related fiscal matters had been resolved. The tax and price levels in the accord reached were the same as in the agreements reached by the federal government with the Alberta and B.C.

governments in September, with additional emphasis on heavy oil in the Saskatchewan agreement reflecting that Province's major heavy crude oil resources. The federal and Saskatchewan governments agreed to provide incentive pricing and fiscal arrangements for an upgrader to process heavy oil into a product more easily handled by conventional refineries. The Appendix to the Letter of Understanding between the two governments set out specific provisions regarding the Conventional Old Oil Price, the New Oil Reference Price and its administration, the Petroleum Incentives Program, Provincial Incentives to Industry and the Saskatchewan Royalty Tax Rebate, Payment of the Natural Gas and Gas Liquids (NGGLT) and of the Canadian Ownership Special Charge (COSC), Payment of the Petroleum and Gas Revenue Tax (PGRT) and the Incremental Oil Revenue Tax (IORT), a Heavy Oil Upgrader, Heavy Oil Exports, Heavy Oil-Fossil Fuel Research, Development and Demonstration, Enhanced Oil Recovery, Saskatchewan's Income Tax on Incremental Oil Revenue, Saskatchewan's Royalty and Tax Regime, Fiscal Undertakings, Low Productivity Wells, and Revenue Estimates. At the time, It was expected that total revenues accruing from Saskatchewan oil and gas production in the period 1981-86 would amount to \$15.4 billion, with the federal and Saskatchewan governments' shares being 22.7% and 37.7%, and the industry share, 39.6%.

Norman Wells oil pipeline

On November 17, the NEB announced it had issued a certificate to Interprovincial PipeLine (NW) Ltd. authorizing construction of a \$1.3 billion, 900 km pipeline to transport oil from the Norman Wells field in the N.W.T. to a northern Alberta pipeline connection. The certificate allowed Interprovincial to proceed with financial, environmental, inspection and monitoring programs in preparation for a mid-1985 start-up.

Canada-Alberta agreement on gas pricing and market development incentive payments

In November, a Memorandum of Agreement between the Government of Canada and the Government of Alberta respecting Gas Pricing and Market Development Incentive Payments was completed and signed on December 10 by the federal Minister of EMR and the Alberta Minister of Energy and Natural Resources. It was a sub-agreement to September 1 Memorandum of Agreement on Energy Pricing and Taxation between the two governments. The November Agreement provided for steadily rising natural gas prices, from \$1.701/GJ on November 1, 1981 to \$4.03/GJ by August 1, 1986, with semi-annual increases being set at the Alberta border. Under terms of the Agreement, the Alberta government undertook to make gas market development incentive payments to the federal government to facilitate the expansion of markets for gas in provinces east of Alberta. The payments were to be used to fund federally-administered transmission and distribution system expansion programs and other programs under the NEP designed to encourage the growth of markets for Alberta gas. For its part, the federal government undertook to maintain a significant price advantage in the market place for natural gas over oil. Natural gas producers would benefit from higher volumes and consumers from incentive prices.

Canada-
Saskatchewan
heavy oil
agreement

In November, the management committee of the Canada-Saskatchewan Heavy Oil Agreement, signed in October 1976, met to review 21 proposals received under the second call. Up to late 1981, \$9.5 million had been spent to encourage the more efficient and complete extraction of heavy oils from the Lloydminster oil area. The two governments had made \$16.2 million in total available to assist in the development and application of improved recovery techniques. The program continued in 1982 in terms of 13 new R&D contracts costing at about \$6.2 million.

TQM gas pipeline
application

On November 12, notice was given of the filing of a modified routing application with the National Energy Board by Trans Quebec and Maritimes Pipeline Inc. (TQM) for the section of the proposed gas pipeline to the Maritimes between Levis-Lauzon, Quebec, and Edmundson, N.B. The federal government had set aside funds to assist companies such as TQM, Gaz Métropolitain Inc. and Gaz Inter-Cité Inc. to develop and expand transmission and distribution systems to communities such as those in the Lower St. Lawrence region. At this time, the federal government indicated its intention of approving the August 1981 decision of the NEB in favour of constructing the TQM system to Nova Scotia. That project had been recommended in the NEP of October 1980. The plan in late 1981 was to route the TQM through Rivière-du-Loup before entering New Brunswick. At the end of 1981 TQM, a consortium consisting of TransCanada Pipelines Company Ltd. and NOVA, An Alberta Corporation, received government approval to extend the gas pipeline system from Quebec City through New Brunswick to Nova Scotia. By the late 1980s, the gas pipeline system had not been extended into the Maritimes.

November 1981
Budget -- PGRT,
IORT, PIP

On November 12, the Minister of Finance tabled a budget which introduced changes in the tax structure to implement decisions reached in the Energy Agreements with the western provinces in September and October. The Petroleum and Gas Revenue Tax (PGRT), levied on net revenues of oil and gas productions had been initially set at 8 per cent but was increased to 16 per cent effective January 1, 1982. However, a 25 per cent resource allowance deduction reduced this tax to an effective rate of 12 per cent. An Incremental Oil Revenue Tax (IORT) became effective January 1, 1982 and taxed revenue from the production of 'old' oil at a rate of 50 per cent of "incremental oil revenues", these being defined as the difference between wellhead oil prices established in the NEP and those actually received, less applicable Crown royalties. Another tax provision called for the phasing out of all earned depletion allowances for exploration and development on provincial lands at the end of 1983, and on Canada Lands at the end of 1984. Incentives for exploration and development were to be provided under the Petroleum Incentives Program (PIP), introduced as part of the NEP. PIP was designed to provide incentives on a sliding scale, depending on the area of exploration and development, and the amount of Canadian ownership and control of the participant. The excise tax on natural gas exports, set at 28 cents/GJ on February 1, 1981, was set at zero for the period October 1, 1981 to December 31, 1986 for gas exported from the provinces but remained at the original level for any gas exported from Canada Lands.

**Budget paper on
economic
development**

Included in the Budget Papers tabled in the House of Commons by the Minister of Finance on November 12 was the document "Economic Development for Canada in the 1980s", setting out the Government of Canada's policies and priorities for national economic development. The paper emphasized the importance of energy in future economic development. As part of the fiscal plan announced in the Budget, the government allocated over \$42 billion to economic development expenditures and another \$18.2 billion to energy development in the period 1981-82 to 1985-86. Progress in the priority areas of industrial development, resource development, transportation, export promotion, and human resources was considered to be considerably dependent on progress made in the energy programs and projects of the NEP.

**Offshore
negotiations -
Newfoundland**

Offshore negotiations continued with Nova Scotia and Newfoundland, and on November 2 the Minister of EMR in a televised message to the people of Newfoundland reviewed the federal government's proposal for settlement of the offshore jurisdictional issues. The federal government's proposal included the offer to treat offshore oil and gas resources for revenue purposes as though the resources were located on land, an offer that would continue until Newfoundland achieved an agreed upon level of wealth. After that, a new sharing arrangement, which reflected the national government's long-term responsibilities, would come into effect. Negotiations continued but no settlement was reached until February 1985, following the election of a new federal government in September 1984.

**Crown interest
(share) in
Canada Lands**

Concern was expressed in 1981 by the United States government about a provision of the National Energy Program making retroactive application of the 25 per cent Crown interest or share to existing discoveries of oil and gas in Canada Lands. This was provided for in the Canada Oil and Gas Act. This matter was particularly active in November when Bill C-48 to establish this Act, was before Parliament. The Bill received Royal Assent in December. U.S. concern related primarily to the retroactive feature of the Crown interest. Earlier assertions of the Crown interest had operated prospectively, the Crown's interest being known and established prior to major discoveries. Previously, affected investors claimed the option to avoid an assertion of Crown interest through higher royalty payments to the Crown. The charge was made by the U.S. government, and international oil companies, that the new legislation changed the rules of the game in mid-course and frustrated the reasonable expectations of investors developed over a 20-year period. In response to the concern expressed about this matter, the government amended the legislation to provide for "ex gratia" payments to foreign and domestic companies in respect of 25 per cent of exploration expenditures. However, this was not considered by critics of the legislation to be adequate compensation and the matter continued to be controversial until 1985 when the provision was removed from the new Canadian Petroleum Resources Bill, tabled in the House of Commons in December of that year. The previous procedures enforcing the 50 per cent Canadian ownership policy under the Canada Oil and Gas Act were, at the same time, replaced by a Canadian

share emphasizing sales to Canadian-owned public and private sector firms, the Canadian share pertaining only to that portion of a project that would be less than 50 per cent Canadian-owned.

**B.C. Hydro
Expansion plans**

In November, B.C. Hydro announced plans to dam two of the province's last remaining wilderness rivers, the Liard and the Stikine, as the end of B.C. major hydro projects, which would take the province to the year 2000. The plan was to spend \$28 billion in the 1980s.

**Eldorado Nuclear
to close
Beaverlodge mine**

In December, Eldorado Nuclear Limited announced the closure of its Beaverlodge uranium mining operation at Uranium City, Saskatchewan, effective June 30, 1982. Cost of producing uranium at this mine were stated to be the highest in Canada, in the order of \$C156/kg U(\$C60/lb U₃O₈). The mine was being closed because of the high costs and steady decline in ore grades, and the drop in world uranium prices. The remote location had added to problems of retaining skilled workers. The company, a federal Crown corporation, and the government of Saskatchewan entered into a generous program to minimize the social impact and implement an orderly shutdown. In the process, all of the classic problems of a declining mining community were encountered.

**Petroleum
compensation
charge
differential**

On December 16, the Minister of EMR released for public comment a discussion paper entitled "A Quality Differentiated Petroleum Compensation Charge for Domestic Origin Refinery Feedstocks". The Petroleum Compensation Charge (PCC) was being levied as a refinery tax on crude oil at \$39.64 per cubic metre (\$6.30 per barrel) to finance the oil import subsidy and to provide reference prices for synthetic and new oil and, in total, to provide for the blended oil price regime. The discussion paper proposed a system of varying the rate of the PCC, depending on the quality of the domestic crude oil to which it applied. The "differentiation" was designed to make light, high quality crude oils more expensive and heavy, low quality crude oil cheaper for refiners and thereby encourage Canadian refiners to use more of the country's abundant heavier crudes in keeping with supply security goals. The wider differences between heavy and light crudes would also provide the basis for upgrading heavy crude oil into light synthetic oil, as envisaged in the proposed Saskatchewan heavy crude oil upgrader project. A phased introduction of wider differentials through the PCC over the period 1983-86 was proposed.

**Cooperatives --
federal joint
oil and gas
ventures**

On December 17, the Minister of EMR and a representative of an association of cooperative financial and marketing institutions signed an agreement-in-principle which would enable those institutions to become participants in a joint venture with the federal government in the oil and gas industry. As a result of the agreement, three new organizations were to be created to provide a means for members of the cooperative system to participate in the oil and gas industry: the Cooperative Energy Corp (CEC), a holding company; the Cooperative Exploration and Development Corp (CEDC); and the Cooperative Energy Investment Fund (CEIF), a trust fund. The federal

government planned to make up to \$100 million available for oil and gas developments as matching funds to investment funds generated by the cooperative organizations over the following five years. The federal funds would be placed in CEC which in turn would invest in CEDC and CEIF. CEDC would seek additional investment by offering shares to the general public, and CEIF would offer units to the public through credit unions. Cooperating organizations across Canada were represented in the joint ventures.

Canada Oil and Gas Act

Bill C-48, An Act to regulate oil and gas interests in Canada lands and to amend the Oil and Gas Production and Conservation Act, which was tabled for first reading in the House of Commons on December 9, 1980, was subject to considerable review in 1981 before being approved by Parliament and receiving Royal Assent on December 18, 1981. The Act was proclaimed on March 5, 1982. It was the legislative element of the NEP that established a new management regime for oil and gas resource development in the Yukon and Northwest Territories as well as Canada's offshore areas -- on all Canada lands which in total comprise an area almost twice as large as that of the 10 Provinces combined. The new legislation replaced the Territorial Lands Act and the Public Lands Grants Act in matters concerned with the disposition and management of oil and gas rights. It also amended the Oil and Gas Production and Conservation Act to strengthen provisions for the supervision and control of frontier oil and gas activities in the interests of safety and pollution prevention. The new Act was designed to encourage greater Canadian ownership of oil and gas supplies and to stimulate petroleum exploration and development in frontier areas. It required a minimum of 50 per cent Canadian ownership before production could begin on Canada lands; reserved to the federal government a 25 per cent interest in oil and gas discoveries on Canada lands; provided for maximum possible use of Canadian goods and services; and established a royalty system, including a Progressive Incremental Royalty (PIR), which provided higher royalties based on the profitability of fields after production begins. The legislation came under considerable criticism from industry, particularly in relation to the 25 per cent Crown share which was described as 'carried interest', or the Petro-Canada 'back-in' provision.

Uranium resource assessment

In December, EMR released another of a series of annual reports on uranium resources and requirements under the title of "Uranium in Canada: 1980 Assessment of Supply and Requirements". The resource study conducted by the Uranium Resources Appraisal Group (URAG), concluded that total resources in the measured, indicated and inferred categories amounted to 573,000 tonnes of uranium at the end of 1980, some 2 per cent less than reported for 1979. It was further estimated that just over 10 per cent of this uranium would be required domestically over the following 30 years to fuel the 15,000 megawatts of nuclear power capacity operating in 1981 or committed for operation in Canada by 1991. Some 60 per cent of the reported resources were located in the Elliot Lake and Agnew Lake areas of Ontario with most of the remaining resources of economic interest being in northern Saskatchewan. Of the more than

\$600 million worth of uranium shipped by Canadian producers in 1980, some 80 per cent went to the export market, with Japan being Canada's most important customer followed by the U.S., the U.S., and West Germany.

**Crude oil price
changes - NORP
for oil sands**

Crude oil price changes were announced on December 30, in accordance with the energy pricing and taxation agreements between the federal government and the oil producing provinces completed in September and October. The average wellhead price of 'old' conventional crude oil (discovered before January 1, 1981) increased by \$14.15 per cubic metre (\$2.25 per barrel) effective January 1, 1982. Flow-through of the price increase to consumers was to be delayed 60 days, to March 2, 1982. Commencing January 1, 1982, production of 'new' conventional crude as well as synthetic crude from the Syncrude and Suncor oil sands projects received the New Oil Reference Price (NORP).

**Renewable energy
projects**

By December, the federal government had spent more than \$100 million in 1981 on research, development and demonstration projects in renewable energy (other than large-scale hydroelectricity). A target had been set in 1980 for renewables to supply about 6 per cent of total energy demand by 1990 and 10 per cent by the turn of the century. About 32 per cent of Canada's energy demand is in the form of low-grade heat below 100°C and some of this demand, which is largely for water and space heating, can be met by solar energy. Solar and other renewable energy technologies were benefitting from such initiatives as the off-oil programs, increased R&D in the National Research Council, and demonstrations of technologies through federal-provincial agreements administered by EMR.

**Energy conservation
projects -
CREDAs, NEAP,
AECIP**

The record in December showed that Conservation and Renewable Energy Demonstration Agreements (CREDAs) had been signed with most provinces to provide industry with financing on approved costs for commercial first-time use of proven energy-saving technology. The CREDA program, funded jointly by the federal and provincial governments and administered by the provinces, had received \$18.6 million from the federal government by the end of 1981, and provincial contributions totalling \$13.4 million, for 210 projects. The National Energy Audit Program (NEAP), initiated in 1981, was providing funds for educational and consulting purposes. It also included a strengthened Energy Bus Program which by the end of 1981 had made 5500 visits to industrial establishments reviewing energy expenditures of \$140 million and identifying potential energy savings of \$27 million. The \$40 million, 3-year NEAP was being operated under federal/provincial cost-sharing agreements with 20 per cent of the funding provided by the provinces. For the planned 5-year Atlantic Energy Conservation Investment Program (AECIP), introduced in September, grants to cover up to 50 per cent of capital costs for eligible conservation projects were to be made available to qualifying industries, businesses, and private institutions in the Atlantic region.

ESAB allocation programs

By December, the Energy Supplies Allocation Board (ESAB) had completed plans for a mandatory crude oil and petroleum products allocation program. A gasoline rationing plan was also completed, and work was proceeding on a retail diesel fuel rationing program.

NEP initiatives in review - 1981

A review of the NEP in December showed that a number of initiatives had been taken in 1981, directed towards the three primary goals of security of supply, greater opportunity for Canadians to participate in the oil and gas industry, and a fairer sharing of petroleum revenue. By the end of the year most measures were still in early stages of implementation. They included the following:

- Pricing and fiscal incentives: the federal agreements with the three western provinces; the gas market development incentives; and a number of other fiscal and price initiatives such as the Petroleum Compensation Charge (PCC), the Petroleum and Gas Revenue Tax (PGRT), the Natural Gas and Gas Liquids Tax (NGGLT), the Incremental Oil Revenue Tax (IORT), and the introduction of price differentials to encourage the greater use of heavy oil resources.
- Energy supply measures: the Petroleum Incentives Program (PIP), offshore negotiations, pipeline approvals, and nuclear and coal supply projects.
- Oil substitution provisions through the Canada Oil Substitution Program (COSP) and the Utility Off-Oil Program.
- Energy conservation initiatives directed to the building and industrial sectors, transportation, government properties, federal-provincial joint programs, and the establishment of federal conservation offices across Canada, with earlier programs such as the Canadian Home Insulation Program (CHIP) initiated in 1977, being expanded.
- Energy research and development, with increased funds for conservation and the development of alternative energy sources.
- Legislation in the form of a proposed Energy Security Act to provide a legislative base for the many NEP initiatives, and the establishment of a new Canada Oil and Gas Act.
- Canadianization initiatives enshrined in the Canada Oil and Gas Act and the PIP program and the related COR/CS Program; the authorities of the Foreign Investment Review Agency (FIRA); government acquisitions through Petro-Canada such as the Petrofina acquisition financed by the Canadian Ownership Special Charge (COSC); and the monitoring surveys of the Petroleum Monitoring Agency as to Canadian content.

Even as early as the end of 1981 when world price and other conditions that had prevailed in 1979 and 1980 showed signs of change, the many price and incentive tax measures being

implemented under the NEP in anticipation of price and supply emergencies, and the related revenue and cost sharing problems, began to appear extremely complex, out of touch with market realities, and sometimes in conflict, one with another. However, the general public response to the NEP remained positive. A Gallup pole in December indicated that 65 per cent of Canadians would favour even more rapid Canadianization - 75 per Canadian ownership by 1985.

THE YEAR 1982**Natural Gas
pricing for
markets east
of Toronto**

A natural gas pricing policy was announced on January 13, subsequent to the September 1, 1981 Canada/Alberta Agreement on Energy Pricing and Taxation and recommendations of the National Energy Board. Scheduled to be implemented on November 1, 1982, the new statement superseded the policy statement of April 1, 1981 and, for purposes of gas pricing, extended the existing TransCanada PipeLines (TCPL) eastern zone to include the areas of Québec and the Maritimes which was to be served by the TransQuébec and Maritimes Pipeline (TQM). City-gate prices in markets east of Toronto would be the same as the Toronto city-gate price for the same type of gas source. The long-term pricing regime would be based on the principle that the revenues received by TCPL and TQM from sales of natural gas in the domestic market would be equal to the cost of gas at the Alberta border plus all transportation tolls associated with the movement of that gas as authorized by the NEB. The Alberta Border Price for markets east of Alberta would be set in terms of the September 1, 1981 Agreement and would escalate every February 1 and August 1 from \$1.701 per GJ on November 1, 1981 to \$4.03/GJ on August 1, 1986. The Natural Gas and Gas Liquids Tax (NGGLT) would also be set every February 1 and August 1 so that the wholesale price of natural gas at Toronto (the city gate price plus the NGGLT plus the Canadian Ownership Special Charge -- COSC) would be about 65 per cent of the crude oil price at Toronto. (Effective February 1, 1982, the NGGLT was 63¢/GJ and the COSC was 14¢/GJ). To encourage rapid expansion and build-up of new natural gas markets in Quebec and the Maritimes, beginning November 1, 1982 developmental prices were to be prescribed in accordance with this schedule and, for the initial three years of each contract, the development price would be equal to the price of 100 per cent load factor, notwithstanding the distributor's actual load factor.

**Compressed
Natural Gas
Demonstration
Program**

On January 22, a new federal government demonstration program designed to assess the commercial, technical and regulatory feasibility of operating vehicles on compressed natural gas was announced. The program was designed to aid in the development of natural gas as an alternative vehicle fuel and followed such other initiatives as the Propane Vehicle Grant Program with its target of 100,000 propane powered vehicles by 1985. The program consisted of two parts: a general CNG vehicle demonstration designed for small fleets or individual vehicles, with each participant receiving a taxable contribution of \$600 per vehicle in exchange for the provision of data on costs and operating experience; and a CNG fleet demonstration for such fleet operations as taxes, school buses and light commercial vehicles.

**Low-productivity
well allowance**

In January, the federal government announced that, effective January 1, a special federal tax assistance known as the Low-Productivity Well Allowance, would provide

relief from the Incremental Oil Revenue Tax (IORT) on wells producing less than 20 bbls per day. More than 10,000 wells would be eligible amounting to some \$150 million in tax credits over the period to 1986.

Dome Petroleum financing

During 1982 Dome financing became an issue of national importance which continued to attract attention into the late 1980s. In January, Dome announced that it had arranged a \$US 1.7 billion (\$Cdn. 2.1) billion) loan from a consortium of 25 banks headed by Citibank N.A. of New York, with the money to be used by Dome to buy back the three year retractable preferred shares that were to be exchanged for Hudson's Bay Oil and Gas Co. Ltd. (HBOG) common shares. The minority shareholders of HBOG had voted in favour of a proposal by Dome to exchange preferred shares of Dome subsidiary (Dome Resources Ltd.) for the common stock of HBOG that Dome did not already own (47%). When the takeover was completed, Dome would be the largest oil and gas company in Canada based on book value of assets. Based on upstream revenues, the combined Dome-HBOG companies would rank second, and based on total revenues they would rank sixth. Dome Resources was set up by Dome when it acquired HBOG shares from the minority shareholders. Dome had given HBOG stockholders one retractable preferred share of Dome Resources for each of their shares and had promised to buy back all of the Dome Resources shares for \$57.50 each by December 1984. To meet this commitment, Dome had taken out the \$2.1 billion loan, noted above, and held the money in trust to redeem the 36 million Dome Resources shares outstanding. By mid-1982, Dome's financial problems were increased (see note for June).

Ontario Hydro nuclear forecast

In a paper written by the President of Ontario Hydro in January he forecast that in another 10 years (1992) 60 to 70 per cent of Ontario's electricity needs would be met by nuclear energy. "This reflects the provincial government's energy policy, a policy aimed at getting us to "kick the oil habit". Because Ontario brings in three quarters of its energy -- mostly oil and natural gas -- from outside the province, both business and industry are vulnerable to price increases set internationally. The price of world oil is pretty well dictated by what OPEC decides to charge and Canadian prices are subject to upward pressure from OPEC. The people of Ontario, and Canada, must get away from the use of oil because it is highly expensive".

New Oil Reference Price (NORP)

Effective January 1, crude oil discovered on or after that date, and certain experimental schemes for the enhanced recovery of crude oil, became eligible for a price supplement under the new Oil Reference Price (NORP) regime. In the Memorandum of Agreement of September 1, 1981 between the Government of Canada and the Government of Alberta, and subsequent accords with the other producing provinces, a new category of oil was recognized and it was agreed that oil from new sources would receive a new oil reference price supplement up to the limit of international prices. The NEP Update 1982 announced further price supplements (see note for May) following extension of the coverage in March.

Ocean Ranger
drilling rig
disaster

On February 15, the Ocean Ranger, semi-submersible drill ship sank in a storm 175 nautical miles east of St. John's, Newfoundland with the loss of 84 lives. On February 26, the federal and Newfoundland governments announced the establishment of a Joint Commission of Inquiry into the circumstances surrounding the sinking of the Ocean Ranger rig. An investigation by the U.S. Coast Guard, which was responsible for safety inspections of the U.S.-registered rig, was also initiated. Terms of reference for the federal/provincial inquiry were announced on March 18 and gave the six-man commission freedom to report on such matters as acts or commissions by the owner, operator or any contractor of the Ocean Ranger, and to comment on the search and rescue response from Newfoundland and elsewhere.

Newfoundland-
federal offshore
negotiations

The controversial issue of offshore resource ownership and jurisdiction, which had been the subject of negotiation between the federal and Newfoundland governments for a number of years, had reached an impasse and in February the Newfoundland government announced a reference to the Newfoundland Superior Court concerning ownership of offshore resources. In February 1983, the Newfoundland Court of Appeal ruled against Newfoundland.

NEP taxation
measures

On February 23, the federal government introduced a Ways and Means Motion setting out a series of taxes preparatory to legislation to implement a wide range of measures contained in the National Energy Program, as announced in October 1980. The Motion covered taxation measures relative to the Oil Export Charge, the Transportation Fuel Compensation Recovery Charge, the Petroleum Compensation Charge, the Canadian Ownership Special Charge, and the Special Compensation Charge.

Energy Security
Bill 1982 for
NEP implemen-
tation led to
March 2-17
ringing of
H. of C.
division bells

On February 26, the federal government introduced Bill C-94, the Energy Security Act 1982, to implement the major elements of the National Energy Program. The intention, on the basis of this bill, was to create four new Acts: the Petroleum Incentives Program Act, The Canadian Ownership and Control Determination Act, the Petroleum Monitoring Act, and the Motor Vehicle Consumption Standards Act. In addition, the bill was designed to amend the Petroleum Administration Act, the National Energy Board Act, the Petro-Canada Act, the Canada Business Corporations Act, the Energy Supplies Emergency Act 1979, and the Oil Substitution and Conservation Act. It also included two technical amendments to the Foreign Investment Review Act. The bill had been released in draft form on June 22, 1981 to allow for study and comment, and was subsequently changed after extensive consultation with industry representatives, financial institutions and provincial governments. On March 1, the official opposition raised a motion that Bill C-94, being an omnibus bill of considerable complexity, should be divided. On March 2, the Speaker ruled against this proposition. This decision resulted in the presentation of an adjournment vote by the P.C.'s, which they then boycotted, thereby closing down the operations of the House of Commons until March 17 when the Parliament reconvened to vote on the adjournment motion of March 2. Following negotiations commenced immediately after the vote, the government announced on March 22 its

intention to introduce no later than April 8, a total of eight proposed bills which were to be finally disposed of no later than June 30, 1982 (see note for April).

**Alaska Highway
gas pipeline
endangered**

Early in February, five States, 24 Congressmen, and several consumer groups in the U.S. filed a legal challenge to the financing arrangements for the planned \$40 billion Alaska Highway natural gas pipeline, an action that appeared likely to delay or cancel the project. Those challenging the financing arrangements claimed that the U.S. "waiver package" recently passed by Congress would expose consumers in 36 States to the costs of financing a massive pipeline project which might never be completed. In April, the sponsors and producers associated with the project decided to postpone it because of financing difficulties, high interest rates and sagging world oil and gas prices. The project, which had been originally scheduled for completion by 1983, appeared to be indefinitely suspended. In the meantime, the western leg of the pre-build section to deliver Alberta gas to U.S. markets had been completed and the eastern leg was scheduled for completion in September 1982. By the late 1980s, still no progress had been made on financing the Alaska Highway transmission system from Prudhoe Bay in northern Alaska.

**Canada-Nova
Scotia offshore
oil and gas
agreement**

On March 2, the Canada-Nova Scotia Agreement on Offshore Oil and Gas Resource Management and Revenue Sharing was announced. The agreement made provision for the establishment of the Canada-Nova Scotia Offshore Oil and Gas Board to manage offshore oil and gas resources. The Canada Oil and Gas Lands Administration (COGLA) was to administer offshore oil and gas activities. Under the agreement, Nova Scotia would initially receive all provincial-type resource revenues and additional revenues equivalent to the basic 10 per cent royalty on gross production revenue, the progressive incremental royalty up to 40 per cent of net revenue, a provincial corporate tax and a retail sales tax applied in the offshore region, bonus payments, rentals and license fees above administrative costs, and the Federal Petroleum and Gas Revenue Tax (PGRT) at an effective 12 per cent rate. Such revenues would continue until Nova Scotia reached a level of fiscal and economic capacity above the national average when revenues would then be shared with the federal government. The agreement was to stand, after implementing legislation had been passed by Parliament and the Nova Scotia Legislature, even in the case of any subsequent court decision with respect to ownership of the offshore. Nova Scotia thereby gained the majority share of government revenues while the ultimate authority for the management of the offshore resources rested with the federal majority on the joint board. The agreement was directed towards increased energy security and economic prosperity through the development of Nova Scotia's offshore oil and gas resources under terms of a pricing and fiscal regime which it was expected would encourage increased offshore exploration and development on an economic basis.

**NORP coverage
extended**

On March 2, the federal and Alberta governments announced extension of the New Oil Reference Price (NORP) program to cover new pentanes plus discovered or produced

in significant quantities after December 31, 1980, effective April 1, 1982. Crude bitumen and heavy oil from most experimental projects in oil sands and conventional heavy oil areas would be eligible effective by April 1, as would conventional crude produced from drilling spacing units in heavy oil fields in Alberta. Thus, the incentives were being broadened to encourage the more effective use of the resource.

Oil price
declines signal
changing
economic
conditions

In March, spot prices on the world oil market began to drop below official prices for the first time since 1973. While the official price of Saudi Arabia light crude continued at \$US 34.00 per barrel, the spot price declined from that level in mid-January 1982 to \$28.10 by mid-March. World prices were on the decline as the economic recession deepened and oil surpluses developed. Within the Canadian oil industry, domestic investment was off, oil rigs were continuing to move to the U.S., and the Cold Lake and Alsands megaprojects had been cancelled. This led the Alberta and federal governments to take some remedial actions in April and May in the form of Alberta's program of royalty reductions and special grants, and the federal government's National Energy Program Update 1982.

Canada Oil and
Gas Act

On March 5, the Canada Oil and Gas Act was proclaimed. It was the legislative element of the National Energy Program that established a new management regime for oil and gas resource development on Canada Lands. The legislation was designed to encourage increased participation in exploration and development of petroleum resources in the North and offshore, and provide for increased government influence on the pace of exploration and development. As noted in the following item, the "back-in" provision (Section 27) of the Act, continued to be the subject of criticism by foreign companies and their governments.

Petroleum Incen-
tives Program
(PIP), COR and
CS programs
started, - 25%
"back-in"
remains contro-
versial

On March 9, the Minister of EMR announced the conditional start-up of the Canadian Ownership Rate (COR) and Control Status (CS) programs and the conditional commencement on April 19, 1982 of the Petroleum Incentives Program (PIP). Legislation was still pending and about \$940 million of PIP payments had been set aside for the petroleum industry between January 1, 1981 and March 31, 1982. The three programs were considered to be central elements of the National Energy Program and key to the objectives of 50 per cent Canadian ownership of the petroleum industry by 1990, and self-sufficiency in oil by that date. The amount of the incentive payments under PIP were to be determined in terms of an investor's COR and CS. PIP would pay incentives on a graduated scale of up to 80 per cent of exploration expenditures depending upon the degree of Canadian ownership and control of firms, the nature of their expenditures and the location of the expenditures (whether on Canada Lands or in the provinces). In addition, all firms -- whether Canadian controlled or otherwise -- were to be eligible for payments to cover 25 per cent of eligible exploration costs on the Canada Lands, in recognition of the fact that the federal government was reserving a 25 per cent Crown interest in every exploration right in the Canada Lands. This latter provision, the 25 per cent "back-in", continued to be

highly controversial and subject to strong attack by the international industry and some foreign governments though the interest could only be exercised prior to production and the federal government would pay all production costs associated with the 25 per cent Crown share. While Canadian law appeared firm on the point that no compensation for expropriated interests was constitutionally required so long as an uncompensated taking was authorized clearly and unambiguously by the relevant legislation, the question being raised was whether the compensation provided met the norms established by the international community in such situations. However, this issue also involved views to the effect that foreign-controlled companies that have incorporated Canadian subsidiaries in order to exploit energy resources must be taken to have accepted fully the jurisdiction of Canadian authorities. They should not invoke the protection of another state when Canadian policy displeases them.

**Distribution
System Expansion
Program (DSEP) -
a major off-oil
initiative**

The Distribution System Expansion Program (DSEP) was initiated in March for a planned five-year period. It provided assistance to gas utilities in order to aid the expansion of their distribution networks into markets served by oil. Financial assistance was available to assist projects which would not be financially viable for a utility to construct by itself. The program thereby promoted a reduction in oil use in each of the residential, commercial and industrial sectors where gas was available and where the government target of reducing the use of oil to no more than 10 per cent had not been achieved. During its first year of operation, 1982/83, over 350 projects involving \$40 million in federal contributions were approved. These projects brought gas service within reach of 35,000 new customers in the participating provinces - B.C., Saskatchewan, Manitoba, Ontario and Quebec. Two approaches were used in DSEP administration: an annual competition, designed for large extension projects; and an incentive funding component designed to encourage gas expansion activity in areas where some gas service already existed. For the competition procedure, gas distribution companies submitted project proposals to EMR having total capital costs of at least \$100,000, and selections for awards were based primarily on cost effectiveness in displacing oil. Under the incentive funding component, projects not in excess of \$25,000 in total capital costs and which were cost effective in displacing oil were considered.

**Market Development
Incentive
Payments (MDIP)
for DSEP, GMAP
and ICAP**

When the DSEP was launched in March, as described above, funds came from two sources: Government of Canada appropriations and from Market Development Incentive Payments (MDIP) made by the Government of Alberta. MDIP was established under the Canada/Alberta Agreement on Energy Pricing and Taxation of September 1981 and the subsequent November 1981 Agreement on Gas Pricing and Market Development Incentive Payments. It provided funds for partially financing several federally administered programs, including DSEP, to expand gas markets east of Alberta; the \$100 million Gas Marketing Assistance Program (GMAP) to assist Quebec distributors in promoting gas sales

in new franchise areas; and the \$25 million Industrial Conversion Assistance Program (ICAP) to promote the use of heavy fuel oil.

CHIP eligibility
increased by
1.6 million
homes

On March 23, the federal government announced that, effective April 1, an additional 1.6 million homes across Canada would become eligible for grants under the Canadian Home Insulation Program (CHIP). The announcement changed the eligibility date in most provinces from January 1 1961 to January 1, 1971. CHIP provided grants of up to \$500 for insulation improvements in homes of three storeys or less. Total expenditures under the program, initiated in 1977, had amounted to \$447 million. Program costs for 1982/83 were estimated at a further \$280 million. The objective of CHIP was to reduce home energy consumption by 30 per cent through better insulation, and to upgrade 70 per cent of Canadian housing stock by 1987. CHIP payments were on the bases of up to \$350 in taxable grants for approved insulation materials plus one third of the cost of contracted labour to install these materials, up to a maximum of \$150.

Upper Churchill
Falls power -
Quebec -
Newfoundland
dispute

In March, a Newfoundland Appeal Court ruling supported the Newfoundland government's initiative in passing the Water Rights Reversion Act and repealing the original leases to the Upper Churchill Falls power plant. It would thereby permit the province to break the 65-year contract between Churchill Falls (Labrador) Corporation and Hydro-Quebec which had been signed in 1969 (See note for December 1980 on Newfoundland - Quebec power). The matter was then referred to the Supreme Court of Canada. The Quebec government indicated that it would be prepared to negotiate a package deal that would include compensation to Newfoundland for some of the money that province claimed it had lost through the 1969 contract. However, any re-examination of that contract would depend on the results of talks aimed at negotiating a total package which would include Quebec proposals to develop other parts of Labrador having a hydroelectric potential. Newfoundland was not prepared to enter into such a negotiation.

Radioactive
waste management
- AECB

The Atomic Energy Control Board (AECB) in March ruled out any selection of a site in rock to bury high-level radioactive waste until the concept had been thoroughly researched. AECB specified that it wanted proof that once a repository is closed and sealed, radiation doses to the public would likely be no more than a small fraction of those from natural causes. Atomic Energy of Canada was in the process of researching the possibilities of underground disposal for radioactive wastes.

Alberta complaints
re. shut-in
capacity

The Alberta government in March continued to blame federal subsidies on imported oil as the cause of a high degree of shut-in capacity in its oil fields. The federal government noted that the reason for production cutbacks related to a declining demand for gasoline, large inventories of crude oil, and the long term oil import contracts which some eastern Canada refiners had to undertake when the Alberta government cut oil production back in the period March-September in retaliation against the NEP.

Fundy tidal power report

In March an up-dated study of Fundy tidal power, prepared by Nova Scotia Power Corp. and the Tidal Power Corp. of Nova Scotia with support from the federal government, concluded that a \$6-billion (1981 dollars), 4 684 MW power plant could be economically viable. However for the project to proceed, it would require long-term irrevocable export permits and contracts as a condition of financing. About 90 per cent of the power would have to be sold in the export market for the project to be feasible.

NEP Special Atlantic Coal Initiatives, including Scotia Coal Synfuels

By March, considerable progress had been made under the Special Atlantic Coal Initiatives of the National Energy Program as announced in October 1980. These energy initiative were established to increase the contribution of coal to the primary energy balance within Atlantic Canada. The Off-Oil Utility Fund was providing support for a \$2 million technical-economic study of the conversion to coal of the New Brunswick Electric Power Commission's 1,005 MWe Coleson Cove Generating Station and the first two phases of the study had been completed. The Coal Utilization Sub-Program, with federal support of up to \$150 million, included construction of the atmosphere fluidized-bed boiler heating plant at Summerside, P.E.I., and other projects to promote efficient and environmentally acceptable advanced coal utilization technologies including a fluidized-bed test facility to be built at the Point Tupper, Nova Scotia, 150 MWe oil-fired electricity generating plant, as announced in March. In that month, the CANMET Eastern Mining Research Laboratory was officially opened with a mandate to improve mine safety and productivity. The Scotia Coal Synfuels Consortium, with financial support of up to \$1 million from the Canada/Nova Scotia Oil Substitution and Conservation Agreement, had completed the first phase of a feasibility study of the potential for liquefaction of up to 4 million tonnes per year of Nova Scotia coal to enhance the region's supply of transportation fuels.

Oil markets action program

On April 1, the federal government announced a program of action to improve oil markets and increase the production of western Canada light and heavy crudes in view of the extensive shut-in capacity in the country's oil fields. The program included assurances that Canadian heavy crude oil exports to the U.S.A. would continue to be competitively priced by adjusting the export charge as required; promise of favourable treatment of applications to export heavy crude oil surplus to domestic needs including provisions for 1-year licences; provision for exchanges of light and heavy western Canada crude oil via the U.S., without export charge; and consideration of special treatment of crude oil chronically shut-in, such as light Saskatchewan crude, and provision for its export. The oil industry in eastern Canada was being requested to limit imports of crude oil to minimum levels provided for under contracts. The difficulties in the western Canada oil producing industry had arisen as a result of the decline in world oil demand and a related weakening in international prices; the impacts of the NEP "off-oil" and conservation programs, which were lessening the demand for oil within Canada; increases in oil availability in western Canada as a result of various NEP oil price incentives including the NORP; and some decline in U.S. market demand

for Canadian oil. There were also complaints that the Oil Import Compensation Program was favouring oil imports at a time when international prices were softening. In response, the Petroleum Compensation Board changed its methodology of calculating the import compensation rate, from a procedure based on past cargoes and current price postings to set the flat rate in advance, to one in which the rate was set after the fact, based on prices paid for actual cargoes.

Energy Security Legislation

On April 5-7, the Minister of EMR introduced for first reading in the House of Commons eight new energy bills in place of Bill C-94, the Energy Security Bill, which had been introduced on February 26. In addition, many provisions in the omnibus bill had been changed in the new bills. The Petroleum Administration Act was changed to provide for lower ceilings on the Petroleum Compensation Charge (PCC), the Canadian Ownership Special Charge (COSC), and the excise tax on natural gas and natural gas liquids. Amendments to the Department of Energy, Mines and Resources Act gave the Government the authority to establish new energy-related Crown Corporations subject to a House of Commons procedure of negative resolution. Many technical amendments were made to clarify the meaning of certain provisions or to remove inconsistencies in the original Bill C-94. In his appearance before the Senate Standing Committee on Banking, Trade and Commerce on June 28, 1982, the Minister of EMR explained the various changes that had been made in Bill C-94 in drafting the eight bills to replace it. After debate in Parliament, including the committee stage, Royal Assent was given and the bills were proclaimed on the following dates and incorporated into the Statutes of Canada, 1980-81-82. Bills C--101, C-102 and C-104 received Royal Assent on June 29, 1982. Bills C-103, C-105, C-106, C-107 and C-108 received Royal Assent on July 7, 1982. Bills C-101, C-102, C-103, C-104, and C-105 were proclaimed in Royal Assent with the exceptions of the compensation provisions of Bill C-103 which were proclaimed on July 23, and Part II of Bill C-104 which was withheld pending completion of Regulations. Bill C-106 proclamation was also withheld pending Regulations. Bill C-107 was not proclaimed and Bill C-108 was proclaimed on July 23, except for provisions dealing with international power lines and interprovincial power lines which were to be proclaimed effective February 1, 1983.

Statutes of Canada, 1980-81-81

Former Bill No.

| | | |
|-----------------|---|-------|
| Chapter No. 105 | - An Act to amend the Petro-Canada Act. | C-101 |
| Chapter No. 106 | - An Act to amend the Dept. of Energy, Mines and Resources Act. | C-102 |
| Chapter No. 107 | - An Act respecting petroleum incentives and Canadian ownership and control determination and to amend the Foreign Investment Review Act. | C-104 |

| | | |
|-----------------|--|-------|
| Chapter No. 112 | - An Act respecting energy monitoring and to amend the Energy Supplies Emergency Act 1979 and the Oil Substitution and Conservation Act. | C-106 |
| Chapter No. 113 | - An Act respecting motor vehicle fuel consumption standards. | C-107 |
| Chapter No. 114 | - An Act to amend the Petroleum Administration Act and to enact provisions related thereto. | C-103 |
| Chapter No. 115 | - An Act to amend the Canada Business Corporations Act. | C-105 |
| Chapter No. 116 | - An Act to amend the National Energy Board Act. | C-108 |

Alberta royalty and grants concessions

On April 13, the Alberta government announced a package of oil and gas royalty cuts and special grants to stimulate oil and gas production in the province over the following five years to 1986 when the federal-Alberta agreement of September 1, 1981 would expire. The incentives had been promised by Alberta when the agreement was signed in 1981 and were estimated to have a revenue value to industry of some \$5.4 billion.

Northern energy initiatives including the Remote Community Demonstration Program

On April 19, the Minister of Indian and Northern Affairs and the Minister of EMR announced a set of energy initiatives to assist off-oil conversion and energy efforts in the Yukon and Northwest Territories, valued at \$19 million. Included was a new program to examine local supply options for remote communities, and extension of energy price subsidies for a further year. In the longer term, the initiatives were to be directed to decreasing demand for energy through conservation efforts, and the increased use of alternative sources of energy. The Remote Community Demonstration Program, budgetted at \$24 million for all remote communities, would allocate \$10 million to the Yukon and N.W.T. In addition, changes were made in the Canada Oil Substitution Program, (COSP), the Distribution System Expansion Program (DSEP), and the two Conservation and Renewable Energy Development and Demonstration Agreements (CREDAs) entered into with the two Territories, to help them to deal with the unique northern conditions and requirements. By the end of the year, Phase I of the Remote Community Demonstration Program had been established and about 450 communities identified in the two Territories and the provinces as potential areas for assessing oil options and related conservation programs directed to reducing the consumption of high-cost oil for power generation and space heating. The emphasis was on areas which did not have access to electricity grids or natural gas distribution systems. Phase II, scheduled to operate between 1983 and 1986, was designed to offer financial assistance for a limited number of demonstration projects which would focus on alternative technologies and conservation measures which could become available for wide-scale application in remote communities.

Atlantic Energy
Conservation
Investment
Program (AEICP)

During April, the first grants were made to companies in the Atlantic Provinces under terms of the Atlantic Energy Conservation Investment Program (AECIP). Contributions of up to half the capitalized cost of approved energy conservation projects were made available to industry, business and privately-owned institutions. The program had a total budget of \$40 million for a planned five-year period.

Petroleum
Monitoring
Agency modifies
COR procedures

In April, the Petroleum Monitoring Agency (PMA) issued clarifications and modifications concerning procedures for measuring the Canadian ownership rates (COR) under the Natural Energy Program. Payments under the Petroleum Incentives Program (PIP) were determined in part by the degree of Canadian ownership of an applicant who was required to file supporting documentation with respect to ownership when applying for a PIP grant. A Guidebook including a list of all documentation required to be filed by the various types of applicants was being prepared by PMA. The relevant legislation authorizing the PIP and Canadian Ownership and Control Demonstration Programs was proclaimed on June 29, 1982.

International
uranium
marketing
arrangement -
court decision
on prosecution

On April 23, the Supreme Court of Ontario ruled that Eldorado Nuclear Ltd and Uranium Canada Ltd, being Crown agents and immune to prosecution under the Combines Investigation Act, could not be prosecuted for conspiring to fix domestic uranium prices in connection with an international uranium marketing arrangement which operated in the period 1972-75. The Chief Justice ruled that the Combines Investigation Act must be subject to national policy and not govern it: control over atomic energy has been deemed essential to the national interest and the Act does not specify that Crown agents are liable.

Alsands
abandoned
notwithstanding
major financial
support offers
by federal
and Alberta
governments

In April, the Alsands Energy Ltd. consortium abandoned its \$13.1 billion project in the oil sands area of northern Alberta despite a major last-ditch effort by the federal and Alberta governments to improve the economics of the plant for the private investors. In February, five members of the consortium had withdrawn - Shell Explorer (20%), Dome Petroleum (4%), Hudson's Bay Oil and Gas (8%), Amoco Canada (10%), and Chevron Standard Ltd. (8%), leaving only Shell Canada (25%), Petro-Canada (17%), and Gulf Canada Resources (8%). A study commissioned by Alsands showed that the \$13.1 billion initial cost for the plant and the \$1.5 billion to be spent on regional urban development at the Fort McMurray site would translate into a major economic impact with \$19 billion being generated during the seven-year construction phase throughout the Canadian economy. At the time the decision was taken by the principals to abandon the project, the federal and Alberta governments had proposed to put up half the money required and had offered government guarantees of loans for 68 per cent of the remainder of the capital cost. In total, the direct and indirect support offered by the two government would have covered 84 per cent of the project cost. Uncertainty about the prospects for world oil prices and the continuation of high interest rates had made private investors wary, not only about Alsands, but almost large synthetic oil, electrical and coal liquification projects in the U.S. and elsewhere.

Energy Supplies
Allocation
Board --
Emergency Test

In April, the Energy Supplies Allocation Board (ESAB) completed a test of Canada's emergency oil allocation plans involving participation by 30 oil and pipeline companies, the ten provinces and the two territories. The test, called the ESAB Allocations Systems Test-1982, commenced on February 26 with the objectives of testing the ability of all participants to submit to ESAB the required data accurately, on schedule and in the proper format; the ability of ESAB staff to manage the data and produce appropriate allocation factors for oil products and allocation orders for crude oil; the ability of the Electronic Data Processing system to predict refinery production, and establish product allocation factors; and the efficiency of communications between ESAB and the petroleum industry, and ESAB and the oil producing provinces under simulated emergency conditions. ESAB's emergency oil allocation plans had been developed over several years of consultation with provincial governments and the petroleum industry. Plans had been developed for crude oil allocation, petroleum products allocation, and gasoline rationing. A full report was produced on the 1982 test which concluded that the allocation systems had been well developed and would operate as required under emergency conditions.

Offshore
jurisdiction -
reference to the
Supreme Court
re. Newfoundland

On May 19, the Prime Minister announced that the federal government would take the Newfoundland offshore jurisdictional issue to the Supreme Court. The reference related to the Hibernia area of 820 square miles which excluded other major discoveries on the Grand Banks. In June, the Premier of Newfoundland appealed to the federal government to settle the ownership of offshore resources at the bargaining table rather than in the courts but he rejected the federal government proposal for joint management, with ownership to be settled by the Supreme Court. Instead, he called for joint ownership and an agreed revenue sharing scheme with the whole agreement to be enshrined in the Constitution. On June 22, the Prime Minister's office released letters sent to church officials in Newfoundland, to the Premier, and the Premier of Alberta. In this public correspondence, the Prime Minister indicated that, although the offshore ownership matter was before the courts, the federal government was willing and eager to resume negotiations, without preconditions, with the Newfoundland government, on the issues of resource management and revenue sharing. The letter to the Alberta Premier, who had urged the Prime Minister to reconsider the decision to go to the Supreme Court, explained the federal government's reasons for that action relative to the Hibernia area. The case was heard on November 29 but was still before the Court at the end of 1982.

Conservation and
Renewable Energy
Offices - CREOs

By May, the Conservation and Renewable Energy Offices (CREOs), which had been in operation for about a year, had become fully functional in each of the provinces and territories in helping to promote and deliver federal conservation and renewable energy programs. Their public information, liaison and evaluation functions covered the full range of programs including the Conservation and Renewable Energy Demonstration Agreements, the Canada Home Insulation Program, ENERSAVE, and the several programs specific to the various regions. They worked closely with provincial conservation agencies.

**Natural gas
exports - change
in NEB formula**

On May 14, the National Energy Board (NEB) decided to adopt a more flexible procedure for determining the amount of surplus natural gas in Canada available for export. The formula adopted ensured that established reserves sufficient to meet current Canadian needs and anticipated export volumes for the following 25 years would be set aside before granting new export permits. The change in procedure involved a new surplus determination method. Previously, the reserves test protected total authorized exports whether these volumes were actually taken by U.S. customers or not. The new Deliverability Appraisal method of protection was to be based on forecasted actual exports under existing licences. Because of slower growth in the U.S. market in 1981, actual exports were less than 60 per cent of the maximum authorized level compared with 90 per cent in 1979. The impact of unsold gas authorized for export to a specific market had resulted in considerable shut-in capacity in the Alberta gas industry. The new surplus determination was designed to provide realistic protection for volumes of gas authorized under export licences while freeing up gas that could not be sold in one market for sale in others. The NEB announcement followed a Public Hearing on natural gas exports.

**First exploration
agreements under
the Canada Oil
and Gas Act**

In May, the federal government announced the signing of six agreements with Esso Resources Canada Ltd. relative to that company's plans for a \$600 million exploration program in the Mackenzie Delta-Beaufort Sea region. They were the first agreements to be signed under terms of the Canada Oil and Gas Act which called for the replacement of all existing exploration rights by new agreements, with the objective of greater Canadian ownership and participation in accelerated frontier development.

**New Oil Reference
Price (NORP),
Special Old Oil
Price (SOOP)**

The New Oil Reference Price (NORP) program, established on January 1, 1982, was extended to all existing tertiary recovery schemes in receipt of provincial new royalty rates in May when the NEP Update was announced. This price supplement was also made available for wells that had been suspended for three years or more and to a Cold Lake heavy oil project. The NORP supplement was designed to promote the exploration and development of new oil reservoirs, enhanced oil recovery schemes, synthetic oil projects, and oil from Canada Lands. The Special Old Oil Price (SOOP) was implemented on July 1, 1982 as a measure to improve the industry's cash flow and applied to oil discovered after 1973 through to January 1, 1981, for defined classes of wells and specified types of oil. In the early period of the SOOP program, monthly payments to oil companies were totalling about \$20 million while NORP monthly payments were in the range of \$25-30 million.

**National Energy
Program: Update
1982**

On May 31, the federal government issued a report "The National Energy Program: Update 1982", for the purposes of reporting on progress towards the goals of energy security, opportunity and fairness as set in October 1980 when the National Energy Program was announced, and to introduce modifications to the program in the light of changes in domestic and world conditions. In particular, the impact of the world recession on Canada's economy and

the uncertainty of world prices was raising serious cash-flow problems for the smaller oil and gas companies and the gas industry in general. The measures adopted at this time were designed to assist in coping with the problems created by faster than expected reduction in oil use, including shut-in capacity in oil fields; to promote greater use of natural gas; to strengthen petroleum industry cash flow for exploration at a time when the recession and softening world oil prices were weakening the industry's financial position; and to lessen the impact of NEP taxes by freezing the Natural Gas and Gas Liquids Tax to ensure that gas continued to be priced at about two-thirds the value of oil in order to encourage off-oil conversion, and by also freezing the Petroleum Compensation Charge. The cash-flow relief measures were expected to provide an additional \$2 billion for exploration between 1982 and 1986 and were to be achieved by a reduction in the effective rate of the Petroleum and Gas Revenue Tax (PGRT); by providing a small producer PGRT exemption of \$250,000; by a one-year suspension of the Incremental Oil Revenue Tax (IORT); by broadening the scope of the New Oil Reference Price (NORP) to cover high-cost oil production; and by initiating a special price for oil (SOOP) discovered after 1973 and before 1981 to encourage firms which explored aggressively for oil after the 1973 oil crisis. Measures were also implemented to lessen the incentive to import oil by changing the method of calculating the Oil Import Compensation Rate. To promote the more rapid substitution of gas for oil, imports of residual fuel oil were to be licensed. Other measures included the provision of funds for engineering and survey work on a proposed natural gas system east of Quebec City, and the financing of 100 per cent of the estimated cost of constructing branch lines associated with the gas trunk line to Quebec City in order to promote rapid growth in gas sales in Quebec. In relation to this branch lines program, the federal government announced its intention to establish a "laterals fund" of \$500 million to pay for constructing lateral gas pipelines in Quebec.

Energy R&D

In May, the federal government announced a \$40 million increase in energy research and development funding, bringing to \$288.8 million the federal energy R&D budget for fiscal 1982-83. This followed an increase of funding of \$35 million in 1981-82. For 1982-83, R&D funds in the amount of \$32.9 million were to be directed to the development of new liquid fuels including hydrogen, alcohols and synthetic fuels. The conservation R&D was budgeted at \$32.8 million. A total of \$61.1 million was available for work on new energy sources including renewable energy, nuclear fusion, oil sands, heavy oils, coal combustion, and related environmental research. R&D on conventional energy sources, including frontier oil and gas and electrical research, had a budget of \$159.5 million and \$2.5 million was allocated for coordination of the R&D program.

Offshore exploration -- Scotia Shelf Agreements

In June, the first exploration agreements under the Canada-Nova Scotia Offshore Agreement of March 2, 1982 were concluded. They involved exploration commitments by Shell Canada Resources Ltd. in an amount of \$263 million covering activity on the Scotian Shelf. Exploration agreements

established the blocks of land on which a company would work. They also set out the selection process by which exploration agreement lands would be returned to the Crown for future disposition. A company still had to obtain approvals from the Canada Oil and Gas Lands Administration (COGLA) for all phases of its work, including the drilling programs and specific work approvals for each well it wanted to drill. A Canada Benefits plan submitted by a company was a significant feature related to an agreement, calling for a fair and competitive opportunity for local industry to provide goods and services for an exploration program.

**Pace of
Canadianization
too rapid**

In June, the Minister of Finance acknowledged that the pace of Canadian takeovers of energy companies in the previous year had been too excessive and, while the 50 per cent target for Canadian ownership of petroleum industry remained, the government did not intend to press the pace of Canadianization of foreign energy holdings in the years immediately ahead.

**Dome Petroleum's
financial
problems**

In June, there was speculation that some form of federal assistance might be necessary to help Dome Petroleum out of its financial difficulties arising from its massive debt load and the impact that the cost of servicing the debt was having on its financial results. The company was scheduled to pay off \$2.27 billion in debt within the following 12 months and there was a further long-term debt of \$3.26 billion, and \$1.96 billion in preferred equity outstanding for a total debt of \$7.5 billion.

**Petroleum
Incentives
Administration
(PIA) estab-
lished- PIP
implemented**

On June 7, the Petroleum Incentives Administration (PIA) was established in the Department of Energy, Mines and Resources, to be responsible for administering the Canadian Ownership/Control Status (COR/CS) Program and the Petroleum Incentives Program (PIP). Incentives payments were being made to companies based on the level of Canadian ownership and control of each company as determined by the Federal COR/CS system. The Petroleum Incentives Program Act came into force on June 30 and the program was operational in July with an initial appropriation of \$1.9 billion to cover the calendar years 1981 and 1982 and the first quarter of 1983. The first PIP payment was made on July 5 to Ranchmen's Resources Ltd., in an amount of \$8.8 million, representing 80 per cent of the costs incurred in 1981 by Ranchmen's in the drilling of five wells in the Labrador offshore. Ranchmen's was a member of the 8-company Labrador Group actively drilling off the Labrador coast. Drilling results in this high-cost exploration area did not prove to be encouraging and exploration was abandoned by the mid-1980s.

**Supreme Court
rejects export
tax on natural
gas**

On June 23, the Supreme Court of Canada rejected the federal government's claim to the right to tax exports of natural gas from provincially-owned wells. The export tax was found to run counter to Section 125 of the B.N.A. Act, which protects one level of government from being taxed by another. The Court ruled that the tax measures did not fall under federal powers of trade and commerce but was in essence a tax provision -- a revenue-raising measure and not a regulatory measure. Under the National Energy

Program, the Natural Gas and Gas Liquids tax was imposed on domestic and export sales of gas. Under terms of the September 1, 1981 Federal-Alberta agreement, the federal government agreed to lower the gas export tax to zero through to 1986 after extensive controversy in 1981 about the right of the federal government to levy such a tax. The Supreme Court ruling confirmed the Alberta position.

The Canadian-
ization issue
-- a defence

Throughout 1982, the federal government continued to be under attack by the oil industry and various business interests who blamed the outflow of funds, and the related need for high interest rates in Canada, on federal policies such as the NEP and FIRA. A book published in June by David Crane, Toronto Stan economics editor, wrote in support of the NEP Canadianization objective, claiming that it was the huge wealth acquired by the multinational oil companies operating in Canada in the 1970s that was hemorrhaging out of the country. In 1979, 14 of the largest foreign-controlled companies paid out \$438 million to non-resident shareholders in dividends and equity reduction, and there was, in addition, a wide range of intercorporate transfers. A projection made on the basis of oil price increases, as projected in 1980, showed cash flow for the oil and gas producing sector rising from \$6 billion in 1979 to over \$16 billion by 1984 if Alberta's proposals for higher oil prices were adopted and the high level of foreign ownership meant that the escalation value of Canada's oil and gas resources would accrue to the non-resident owners of the oil and gas major companies. The price increase projections of 1980 did not materialize but the extensive protective measures of the NEP, put in place in 1980, began to create their own problems which the NEP Update -- 1982 attempted to alleviate.

Lepreau nuclear
electricity
exports approved

In June the National Energy Board approved the issuance of licences to the New Brunswick Electric Power Commission for the export of 205 MW of electricity from Point Lepreau nuclear station in New Brunswick. The federal government concurred with this decision on August 31. This was the first case of a nuclear-based electrical energy export. By the end of 1982 Lepreau, which began producing electricity in July on approval of the AECSB, was operating at 85 per cent of full power. Construction of Lepreau began in 1975.

Western
electrical grid
delayed

In June, the Alberta government decided to defer plans for participating in the proposed electric power grid for a couple of years in order to look into other power development options, including the possibility of plants on the Slave River. In August, the Alberta government announced it was accelerating engineering feasibility work on the Slave River 1500 megawatt hydro project, with a production target of 1991. Under the proposed grid plan, Alberta was to take two thirds of the 1200 megawatts of electricity that would be produced by the Limestone hydroelectric generating station when it was completed in 1988 on the Nelson River in northern Manitoba and power delivered over a 1700 km HVDC transmission line from Limestone through Saskatoon to Calgary. Cost of the entire generation and transmission project was estimated at \$3.5 billion. The project had been stalled since 1977.

Cooperative
Energy
Corporation
(Co-Enerco)

In June, Bill C-116, the Cooperative Energy Act received third reading in the House of Commons and shortly after was approved in the Senate. On proclamation, the legislation made provision for the establishment of the Cooperative Energy Corporation (Co-Enerco) an association of cooperative financial and marketing institutions that would participate in the Canadian oil and gas industry. Up to \$100 million in funds was to be provided by the Government of Canada over the following five years to match investment funds generated by participating cooperative organizations. A total of 20 cooperatives had become members of Co-Enerco, representatives of agriculture, credit unions, Atlantic co-ops, Quebec federations, insurance companies, and of financial and marketing co-ops in each province. The objective was to provide a new source of funds to the petroleum industry and increase the Canadian content of the industry. A "Certificate of Commencement" was signed by the federal government and Co-Enerco on July 16, 1982, marking the beginning of Co-Enerco operations at which time it had committed \$58 million in funds, an amount matched by the federal government.

Oil and gas
resources and
reserves
estimates --
frontier
potential large
but no
production

In June, the Geological Survey of Canada presented oil and gas resource estimates, and the 1981 year-end reserves estimates of the Canadian Petroleum Association were also released at this time. The GSC estimates included remaining reserves, discovered resources, and undiscovered potential and these were presented in terms of three orders of probability: high (95%), average expectation, and low (5%). The following tabulation summarizes these estimates, 'resources' referring to the GSC average expectations appraisals, and 'reserves' to the CPA estimates which related to reserves in fully developed fields.

| OIL | | GAS | |
|-------------|---|-------------|---|
| Resources*- | 38 billion barrels (6 billion cubic metres) | Resources - | 459 trillion cubic feet (13 trillion cubic metres) |
| Reserves* - | 7.26 billion barrels (1.15 billion cubic metres) | Reserves - | 90.97 trillion cubic feet (2.56 trillion cubic metres) |

- * excluded non-conventional oil (essentially oil sands) in the resources estimate and included only 1.4 billion barrels in the reserves estimate. The Alberta Energy Resources Conservation Board estimates oil sands resource potential at 250 billion barrels.

The GSC resource appraisals showed that the Western Canada basin, the source of almost all of Canada's oil production, accounted for only 23 per cent of the country's oil resource potential. Almost one-half of the oil resource potential was estimated to be in the Newfoundland offshore and the Mackenzie Delta-Beaufort Sea, and the Arctic regions contained an estimated 43 per cent of the gas resource potential. Such estimates led to the increased emphasis in the National Energy Program on frontier exploration. The first exploratory well was drilled in the

Arctic in 1961 and active exploration got underway off the east coast later in the 1960s, but by the late 1980s there was still no established oil or gas production in Arctic or east coast regions.

Energy Security Legislation

In commenting on the Energy Security legislation on July 7, when final approval was given to the last of the eight energy bills, the Minister of EMR directed attention to some of the principal changes among the 50 amendments that the government had accepted since the legislation was introduced on April 7. On Bill C-108, An Act to amend the National Energy Board Act, it was noted that there would be a six-month delay in the coming into force of the provision affecting power lines (clause 33) to give the two principals concerned, Quebec and Newfoundland, time to increase their efforts to reach an agreement to allow Newfoundland to transmit hydroelectric power through Quebec to the United States. The NEB Act amendment was designed to make the same provision for interprovincial power lines as for interprovincial pipelines but the issue between Quebec and Newfoundland had remained highly controversial. Changes to Bill C-106 relative to the Petroleum Monitoring Agency made provision for a parliamentary committee to review the legislation after five years (1987). Amendments to Bill C-102 on the Department of Energy, Mines and Resources Act and Bill C-103, the Petroleum Administration Act, included an affirmative/negative resolution procedure allowing Members of Parliament the opportunity to endorse or revoke orders of the government authorizing the creation of new Crown corporations or the spending of monies from the Canadian ownership account. Several other key amendments in the legislation were noted but most of the other changes were of a technical nature.

Special price for post-1973 oil discoveries -- SOOP

On July 1, the Special Old Oil Price (SOOP) regime was initiated in which the wellhead price of oil discovered in the period after 1973 and qualifying for provincial royalties at "new oil" rates, but not in receipt of the New Oil Reference Price (NORP), would rise to 75 per cent of the current world price. After July 1, the price would remain at this level (subject to a ceiling of 75 per cent of the world price) until the price of conventional "old" (pre-1974) oil reached this level. Thereafter, all oil discovered before 1981 would again be treated in the same manner for pricing purposes.

Marketing of Alberta crude in eastern Canada to reduce shut-in capacity - Domestic Transfer Program

In July arrangements were completed, under provisions of the NEP Update, for Irving Oil Limited to take delivery of Alberta crude oil at its St. John, N.B. refinery. The oil was to be transported to Montreal by the Interprovincial Pipe Line system and then to St. John by tanker over a period of July 1982-June 1983 in an amount of 5000 cubic metres (31,450 barrels) per day. It was estimated that savings in oil import costs would aggregate some \$500 million in the one-year period. The federal government provided financial assistance to the company of about \$15 per cubic metre in moving the crude oil east of Montreal to permit it to be delivered to St. John at a competitive price. Assistance was provided under the Domestic Transfer Compensation Program which was renewed every six months through to deregulation on June 1, 1985. In addition to Irving Oil, Imperial, Texaco and Ultramar

became participants for their eastern refineries. This marketing measure had been implemented to reduce the shut-in capacity in Alberta oil fields.

U.K. criticizes NEP

In early July, the U.K. government Minister of Energy claimed that Canada's energy policy was a mistake as it "snubs the potential value of foreign investment". He was strongly critical of what he described as a nationalistic push on energy through the NEP and the Foreign Investment Review Act (FIRA).

NEP tax impact on the oil industry

In July, the Canadian Petroleum Association (CPA) released its analysis of oil industry financial results for 1981, the first full year under the NEP, and claimed that industry tax payments in the form of corporate income tax and PGRT were 88.6 per cent higher than in 1980. The analysis did not include payments under the Petroleum Incentives Program (PIP) which, when included, resulted in an increase of 44 per cent, about one-half of the CPA estimate. Similarly, cash flow declines as calculated by the CPA were over-estimated as a result of omitting PIP payments.

Suncor (GCOS) expands oil sands operation with federal help - Ontario's investment still under criticism

In July, the federal government approved a \$35.5 million federal tax reduction for Suncor Inc. (the former Great Canadian Oil Sands Limited - GCOS) to assist it in a \$690 million expansion program. Suncor planned to spend \$170 million in improving the efficiency of its oil sands plant in the Fort McMurray, Alberta, area and \$185 million to mine a major portion of its oil sands lease. It also planned to spend \$335 million to upgrade its Sarnia, Ontario, refinery. The company adopted a policy to procure most of its goods and services in Canada for this program. Suncor had a reserve of 68 million cubic metres (428 million barrels) of oil in the Athabasca oil sands area, this program having added 14 million cubic metres to its potential. The program was designed to enhance the supply of oil in Canada and reduce the output of heavy fuel oil. GCOS commenced operations in the Athabasca oil sands area in 1967 at a design capacity of 45,000 barrels a day and had experienced many production delays because of technical problems in mining and processing the Athabasca bitumen. In October 1981, the Ontario government bought a 25 per cent interest in Suncor for \$650 million and, in 1982, continued to be under criticism for the amount paid. A group of professional business investors, sponsored by the Globe and Mail, concluded in a study completed in May 1982 that Ontario taxpayers had paid at least \$300 million more for the shares in Suncor than a prudent investor would have offered. The study, based on price conditions at the time, did not take into consideration the sharp drop in world oil prices that subsequently developed.

Reports on alternative energy sources

On July 28, the Minister of EMR tabled in the House of Commons the federal government's response to the report of the Special House Committee on Alternative Energy and Oil Substitution, released on May 12, 1981, generally referred to as the Lefebvre Report. The seven-member House Committee had made 65 recommendations concerning the potential for reducing Canada's dependence on oil through the greater use of alternative energy sources. The 56-page

response of the Minister observed that there was substantial agreement with the Lefebvre report and that the federal government was already acting on many of the Committee's recommendations. The Committee had focussed on Canada's long-term agency future and the federal response noted that, while the government had to address major short and medium-term concerns, it was also directing attention to long-term energy alternatives, including those favoured by the Committee, such as R&D support for such options as hydrogen, alcohol fuels, solar energy and very high levels of energy-use efficiency. The May 12, 1981 and July 12, 1982 reports provide an important record relative to alternative energy and oil substitution views and initiatives of the early 1980s.

**Nova Scotia
off-shore
exploration**

In July, the federal government decided to issue four exploration permits to an all-Canadian consortium comprising Petro-Canada, Bow Valley Industries Ltd. and Husky Oil Operations Ltd. for an exploration program valued at about \$500 million in an area of 1.7 million hectares off the Nova Scotia coast north of Sable Island. The agreements were to run for three years and involve the drilling of up to eight exploratory wells. One of the two semi-submersible drilling rigs used in the program was constructed in St. John and was the first Canadian-built and owned rig used by a Canadian consortium in Canada's offshore. Particular attention was given to meeting the federal government's industrial and regional benefits guidelines published in August 1981.

**James Bay LG-1
delayed and no
new nuclear
plants in this
century in
Quebec**

In August, work on the James Bay LG-3 and LG-4 sites was being completed on phase one, which would add about 5,000 megawatts of capacity to the 5,000 megawatts of LG-2. A Hydro-Quebec study completed earlier in the year had concluded that, over the period 1982 to 1998, the most probable rate of annual load growth would be 4.7 per cent in contrast with a previous forecast of 6.1 per cent because of slower demographic and economic growth, increased energy conservation, saturation of heating markets, and increased penetration of natural gas. In view of the lower electricity demand forecast, only 10,000 MW of additional capacity would be required between 1985 and 2000, rather than 20,000 MW in the previous forecast, and capital expenditures would be reduced by \$50 to \$70 billion over the period. This reduced expansion indicated that there would be no new nuclear plants built in Quebec in this century after Gentilly II was completed in 1983. By August, Hydro-Québec had also concluded that the second phase of the James Bay project would be delayed five or six years, with LG-1 not starting until at least 1988. Only the development of new export markets might change that prospect.

**Petroleum
Monitoring
Survey, 1981**

On August 10, the Canadian Petroleum Industry Monitoring Survey 1981 was released by the Petroleum Monitoring Agency. Analyses of 101 of the largest oil and natural gas companies on their 1981 operations showed that foreign ownership had declined to 67.2% from 73.9% in the previous year. Net income (after-tax profits) on overall operations of the industry declined by \$1.6 billion, or 34 per cent, to about \$3 billion, as total deductions against revenues rose by 31 per cent compared with a revenue

increase of 21 per cent on total operations. High interest rates, declining consumer demand, and the impact of NEP tax provisions were said to have cut after-tax profits.

**Nuclear Industry
Review -
problems and
prospects,
1981-2000**

In August, EMR released a report entitled "Nuclear Industry Review - Problems and Prospects 1981-2000" (66 pages). While the Review suggested that the long-term prospects for the nuclear industry were favourable and that Canada would need an industry capable of building new reactors in the 1990s, it was noted that growth in the demand for electricity had slackened in the early 1980s, delaying new reactor orders. Foreign demand for reactors had fallen as well, creating an intensely competitive and uncertain export market. Consequently, the short-term prospects for the nuclear industry were not bright. Of concern, was the high risk that Canada could lose the ability to build reactors competitively by the late 1980s because of the downturn in activity in the early to mid-1980s. The report found that there were three possible markets for Candu sales: the Canadian domestic market, the electricity export market, and the world reactor export market. In the long term, domestic requirements for nuclear generating capacity would likely be sufficient to sustain the industry, but in the next few years, export sales of reactors and of power from domestic reactors held the most promise for maintaining the country's industrial capabilities in nuclear technology. The report outlined policy options for maintaining manufacturing capability and a variable industry through the 1980s. The most promising options for improving the industry's prospects in the domestic market in the short run were policies aimed at achieving an early commitment by Quebec and New Brunswick to Gentilly-2 and Lepreau 2, respectively. New reactors in Ontario committed at least partially to export might also offer prospects. The export market for Candu reactors appeared to offer some prospects but concessional financing might be necessary to meet competition abroad. The report provides an important record of the status of the nuclear industry in the early 1980s and of the problems facing it through to the 1990s.

**Arctic Pilot
Project (APP)
- delayed
indefinitely**

In August, the Arctic Pilot Project (APP) shelved plans to build a \$300 million re-gasification terminal for gas shipped out of the Arctic Islands. TransCanada PipeLines had applied to the National Energy Board to build a plant on the Strait of Canso, N.S. or at Gros-Cacouna on the St. Lawrence but with prospects for marketing the gas in the U.S. having diminished, APP was directing its attention to the European market for Arctic gas. The project to transport LNG in ice-breaking tankers from Melville Island to southern markets having been set aside, the APP asked the NEB to revise its hearing schedule so that the companies would have time to investigate European markets, particularly in France and Germany. However, potential U.S. customers advised the NEB they would strongly oppose any alteration of the project. In September, the NEB suspended the APP hearings to give the consortium time to negotiation with European customers. It now appeared that the first shipment of gas from the Arctic would be delayed until 1988. At the same time, the NEB's decision to suspend the APP hearings was taken by industry as a warning that if companies did not have concrete

proposals they should not waste the time of the regulatory process. In November, the NEB rejected a request by the APP to review its earlier decision to suspend the hearings, advising the associated companies that the request for review had not indicated any change in circumstances. By the late 1980s, no further progress had been made in the APP project which, for the northern component alone, was estimated at \$2.1 billion by the participants - Petro-Canada, NOVA, Dome Petroleum, and Melville Shipping Ltd.

Syncrude Canada
Ltd oil sands
plant - oil
sands resource
development slow

By early August, Syncrude Canada Ltd. had produced 100 million barrels of crude oil since its production start-up in 1978. However, although the project was licensed to produce 129,000 barrels (20,500 cubic metres) per day, its output during the first half of 1982 had only averaged 84,000 b/d, up from 49,400 b/d in 1979, its first full year of operation. The project made its first production application in 1961 following feasibility work that had been initiated at the Mildred Lake property site, 40 km north of Fort McMurray, Alberta, in 1959. When production commenced in 1978, construction costs in the period 1974-78 had aggregated \$2.2 billion. From the start, production was given world-level prices. Provision was made in the Energy Update 1982 initiatives to lower the Petroleum and Gas Revenue Tax on Syncrude and Suncor oil sands production from 12 per cent to 8 per cent for the period January 1, 1983 to December 31, 1984. These were the only plants in production in the Athabasca oil sands. The oil sands deposits were first mapped in 1778. Detailed investigations of mining and separation processes date as far back as 1913 but production did not commence at the Great Canadian Oil Sands plant (now Suncor) until 1967 and at Syncrude until 1978, and by the late 1980s there was still no economic means of in-situ recovery. The Alberta Energy Resources Conservation Board has estimated the oil resource potential of the oil sands to be of the order of 250 billion barrels (40 billion cubic metres), with ultimate recovery depending on mining and in-situ production technology and economics. The experience of Suncor and Syncrude, and the cancelling of the proposed \$13.9 billion Alsands project in April 1982, has indicated the importance of technological advance and special economic conditions in even operating on the near-surface material of the Athabasca oil sands resource.

Petroleum refinery
shut-down in
eastern Canada

In September, BP Canada Inc. announced the closure of its Montreal petroleum refinery and Shell Canada Ltd., its Oakville, Ontario, refinery - both effective mid-1983. In October, Texaco Canada Inc. closed its Montreal refinery. Declining demand for gasoline and home heating oil had given rise to considerable surplus capacity in the Canadian refining industry. The need to rationalize the industry came about as a result of energy conservation measures initiated in 1974 and further intensified in the National Energy Program, and the extensive off-oil measures of that program. The fall-off in petroleum demand was also creating problems in the crude oil producing industry in western Canada and modifications in the NEP in 1982 were attempting to deal with that problem.

Uranium marketing
arrangement --
international

In September, the Supreme Court of Canada agreed to review an Ontario Court decision which held that Eldorado Nuclear Ltd. and Uranium Canada Limited, both federal Crown corporations, were immune from prosecution charges of uranium price fixing relative to the international uranium marketing arrangement of 1972-75 - the so-called cartel.

Trillium
Exploration
formed by
OEC and Suncor

In September, the Ontario Energy Corporation (OEC), an Ontario Crown corporation, and Suncor Inc. jointly established Trillium Exploration Corporation which commenced exploration off the east coast. Ontario Energy Corp. had acquired 25 per cent of Suncor in December 1981. The Ontario government was seeking to establish oil and gas reserves within Canada in order to improve the province's energy supply position.

Pre-build of the
Alaska Pipeline
in full
operation

In September, Alberta natural gas began to flow to U.S. markets through the eastern portion of the Alaska Highway Pipeline pre-build project. New exports, arranged by Pan-Alberta Gas Ltd., began in October 1981 through the western leg of the pre-build. The eastern leg was authorized to carry up to 800 million cubic feet a day and the western leg, 240 million cubic feet a day.

Dome bail out
by federal
government and
banks --
proposal

On September 30, the Minister of EMR announced a Bank/Government Financing Arrangement for Dome Petroleum which had been experiencing increasing difficulties in managing its debt. This had resulted mainly from its investment of about \$4 billion in 1981 in the purchase of Hudson's Bay Oil and Gas Ltd. from U.S. interests. Because the government had concluded that further loans or loan guarantees would not be suitable under the circumstances, the proposed refinancing package involved a debenture with interest paid in the form of shares to be offered jointly by the federal government (\$500 million) and, on a pro rata basis of their loans to Dome, by the chartered banks (also a total of \$500 million). The company could draw up to \$1 billion worth of the debenture with an effective interest of prime plus 1% being paid in shares upon it. The shares would be obtained at the conversion price for the first two years and at 90% of the prevailing market price thereafter. In addition, the debenture would be convertible into shares for the first 18 months at \$2.50 a share, escalating to \$5.00 by the seventh year. The debenture would also have redemption rights to allow for maximum flexibility of all parties through the life of the debenture. The participants would also receive warrants at \$2.50 a share at the rate of five shares per year per \$1000 of debenture outstanding.

Reaction to
proposed Dome
bail out

The reaction in October, following the September 30 announcement of a proposed bail out of Dome Petroleum, covered a broad range of views but generally directed to one of two positions. One of these positions was that to let Dome go down would be to risk calamity in the financial system. Any company that made the errors of judgement and timing that Dome did deserved, in a market economy, to fail, but letting Dome fail would have been more costly by far to Canadians than bailing it out. The other view in October 1982 was that had Dome failed to meet its financial commitments, the company would not have vanished into thin air. Its extensive assets would have endured and

eventually the company would have been taken over for an amount which more accurately reflected its true value. Had Dome been allowed to fail, the company would have eventually emerged with a more rational financial structure and without the infusion of public funds.

Federal-Newfound-
land offshore
jurisdiction
issue -
Newfoundland
position

While the Newfoundland offshore jurisdiction was before the Supreme Court of Canada, on a reference of the federal government, and the Appeals Division of the Newfoundland Supreme Court, on a reference of the Newfoundland government, the Premier in October continued putting his case to the public, claiming that the undersea petroleum resources belonged to Newfoundland for historic, moral, legal and constitutional reasons. The Newfoundland view was that the province retained control of its renewable and non-renewable resources when it joined Confederation in 1949, surrendering only responsibility for such matters as defence, money, banking and international trade.

TQM beyond
Quebec City
postponed

In October, Trans Quebec & Maritimes Inc. (TQM) announced that the gas pipeline would not be extended beyond Quebec City in the foreseeable future. It was completed to Trois-Rivières in December 1982 and was expected to reach Quebec City before the end of 1983. Engineering work would proceed on the Maritimes section and, by the time it was completed, a decision could be taken on the basis of whether Sable Island, N.S. gas would be available and whether a larger size reversible pipeline would be needed. That question had still not been answered by the late 1980s.

IEA warns
energy crisis
not over

In October, the International Energy Agency (IEA) warned that, despite the recent glut of oil on the world market, the energy crisis was far from over. IEA's World Energy Outlook Study stated that "rather than eliminating the energy crisis, the current recession has helped conceal it. With oil prices falling, there is a danger that misleading market signals will cause both complacency among energy consumers and hesitation among investors, with the result that problems foreseen for the late 1980s and 1990s are not adequately dealt with in time".

Polar Continental
Shelf Project
(PCSP) Arctic
programs

In October, the Polar Continental Shelf Project (PCSP), a unit of the Department of Energy, Mines and Resources, completed another field season in the High Arctic, its 24th since it was established in 1958. In 1982 projects under the auspices of the PCSP were conducted in the Northwest Passage and the Beaufort Sea. They included gravity surveys, hydrographic and wildlife investigations, bathymetric charting, permafrost and sea ice studies, and programs in offshore sedimentation. During the 1980-81-82 field seasons, more than 160 scientific programs were undertaken by university and government scientists, with the programs being supported by the PCSP from base camps at Tuktoyaktuk and Resolute. Scientific studies undertaken in the Arctic each year range from archeology to geology. In addition to providing financial support for many of these studies, the PCSP coordinates the logistics for almost all research in the Arctic except for oil industry activities. It has also been the prime coordinating agency for Arctic research between Canada and other Arctic powers. PCSP is

also directly engaged in its own basic and applied research on such matters as glacier physics, climatology and sea ice studies. The work of the PCSP over the years has greatly advanced the scientific knowledge of the Arctic region, provided basic scientific data for oil and gas industry exploration programs and other resource development activities, and extended Canada's sovereignty in the North.

**Radioactive
waste disposal
-low-level
waste, uranium
waste, and
irradiated fuel
waste**

In October, the federal government announced the establishment of a low-level radioactive waste management office to ensure that means were made available for the permanent passive disposal of low-level radioactive waste as produced in research facilities, hospitals, industrial plants and in nuclear electricity generating stations. This did not include high-level waste from irradiated nuclear fuel, as the federal government already had a separate research program for the disposal of irradiated fuel wastes from nuclear stations that was being conducted by Atomic Energy of Canada Limited (AECL) in cooperation with Ontario Hydro and was concerned with research on isolating these wastes deep in stable crystalline rock in the Canadian Shield under terms of a Canada/Ontario agreement of June 1978. The new office was to be a separately-funded program under AECL. At the time, most low-level wastes were in safe storage under supervision but permanent disposal would eventually be required. In addition, to carrying out waste disposal research and management, the new office would seek to coordinate such disposal activities with provincial authorities and industry. The decision to establish the office was based on a study carried out for EMR in 1981 by Hickling Partners Inc. on "Managing Low-Level Radioactive Wastes: Proposed responsibilities and management structure". A third program concerned with radioactive materials had been announced a month earlier, in mid-September, and provided for a five-year study of the potential long-term effects of uranium mine and mill wastes. That program was aimed at accelerating development of technology to reduce harmful effects of waste materials from uranium mining and milling, and followed from a year's study by the federal-provincial National Technical Planning Group on Uranium Tailings Research, established by EMR. A National Tailing Program Office was to be established in Ottawa to administer this federal research program, and make recommendations concerning the management of some 130 million tonnes of tailings in waste-disposal areas at uranium mill sites in Canada, almost all in the Elliot Lake area of Ontario and the Beaverlodge and Rabbit Lake areas of Saskatchewan. With these three programs, the federal government was actively addressing all aspects of the management and disposal of radioactive waste in Canada.

**Do Governments
Take Too Much?**

An EMR study completed in October examined the relative contributions of the NEP fiscal regime and the debt burden to the financial difficulties in 1982 of the oil and gas industry. It concluded that the federal government had achieved its objective of a fairer share of oil and gas revenues, but that this redistribution had come about largely as a result of more equitable sharing between federal and provincial levels of government. The fiscal burden on the industry had remained relatively constant. However, for the industry as a whole, and for the Canadian

sector in particular, the burden of rising interest rates had increased greatly. Rather than the NEP fiscal regime, the cause of the cash flow problems of the industry related more to the impact of higher interest charges.

Gas Marketing Assistance Program (GMAP) initiated in Quebec

On November 17, agreements between the federal government and Quebec gas distributors, Gaz Métropolitain and Gaz Inter-Cité, were signed, implementing the NEP Gas Marketing Assistance Program (GMAP) to promote the rapid growth of gas sales in the new market areas of Quebec. GMAP removed from the distributor the financial burden of overcontracting for gas supplies in early stages of developing a new market. Each new gas contract entered into between the distributors and the transporters was to be covered by GMAP 'insurance' for the contract's first three years in terms of relief from certain fixed transmission charges. It was expected that almost \$100 million in contributions would be made during the planned five-year period of the program. GMAP was funded from the Market Development Incentives Payments (MDIP) made to the federal government by Alberta in accordance with the November 1981 Canada/Alberta Agreement on Gas Pricing and Market Development Incentives Payments, and was directed to the expansion of markets for Alberta gas in eastern Canada.

NEB domestic gas recommendations

In November, the National Energy Board released its report on the domestic pricing and marketing of natural gas and recommended a number of pricing incentives to promote the greater marketing of natural gas in Canada. The majority of these recommendations were being implemented in the form of the GMAP for Quebec and the \$500 million gas transmission laterals program for that province. Other measures included the setting of eastern Canada gas prices in terms of the Toronto city-gate price, and a number of initiatives directed at reducing the use of heavy fuel oil.

Panarctic exploration in the Arctic Islands region

In November, the federal government concluded 20 Arctic exploration agreements with Panarctic Oils Ltd. acting on behalf of 67 companies operating in the High Arctic. The agreements, involving a total of about \$700 million in continuing exploration activity over the following five years, called for Panarctic to drill 25 wells - 17 offshore and 8 on the Arctic Islands. This was the largest package of agreements ever concluded by the Canada Oil and Gas Lands Administration (COGLA). Under the Canada Oil and Gas Act, proclaimed on March 5, 1982, all interests in the Canada Lands were to be converted to exploration agreements which, among other commitments, involved a Canada benefits plan satisfactory to the federal government.

Further warning of oil shortage

A Cambridge Energy Research Associates study in the U.S. published in November warned that OPEC could plunge the world into the third energy crisis as early as 1986. "Even a small percentage increase in primary energy consumption could lead to a much larger increase in world oil consumption and ultimately to an explosion in the demand for OPEC oil."

FIRE program revised

Further Forest Industry Renewable Energy Program (FIRE) incentives were given in November to increase the attractiveness of the program and improve its effectiveness

in promoting the use of renewable energy. The new measures provided for the inclusion in eligible expenses of the capital cost of biomass systems and the cost of the buildings required to house these systems, up to 20 per cent of project costs. The program, in total, provided incentives to industrial, commercial and institutional establishments to convert and install energy facilities using wood residues, municipal, agricultural or industrial wastes, as well as peat and other forms of biomass fuel.

**AECL planning
cut-backs
including
heavy water
plants**

In November, Atomic Energy of Canada Limited (AECL) reduced its work force in Mississauga and Montreal because of lack of demand for Candu reactors and related services, and indicated the possible closure of its heavy water plants at Glace Bay and Port Hawkesbury in Nova Scotia where heavy water had been stockpiled since 1980 at a cost of about \$100 million a year.

**CHIP grant
criteria
modified**

In November, the criteria for making grants under the Canadian Home Insulation Program (CHIP) were changed to achieve more effective conservation activity and to contribute toward the energy budget savings announced in the October 27 federal budget. The CHIP contribution was changed to 60 per cent of materials and labour costs in place of 100 per cent of materials and 33 1/3 per cent of labour costs, but the maximum taxable grant remained at \$500. From the inception of the program in 1977, CHIP grants to September 30, 1982 had totalled \$631.4 million.

**Propane Vehicle
Grant Program**

An analysis of the Propane Vehicle Grant Program made in December showed that applications for 17,400 vehicles had been made under terms of the program since it was initiated in June 1981. Nearly \$6.3 million had been paid for conversion of 15,700 vehicles. The program provided up to \$400 in taxable grants to convert vehicles to propane fuel. The objective was 100,000 vehicles by 1985 which would displace 13,000 barrels of oil per day. The program, available to commercial and farm vehicles, was budgeted at \$38 million for a five-year period.

**Trans-Canada
pipeline
completed from
North Bay**

On December 2, TransCanada PipeLines Ltd. announced it had completed construction of its \$420 million, 426-kilometre natural gas pipeline from North Bay through the Ottawa Valley to Morrisburg, all in Ontario. The line was built to provide a shorter route to serve new natural gas markets in eastern Canada and provide natural gas service to Ottawa Valley communities.

**Dome's Beaufort
Sea exploration
negative**

In December, Dome Petroleum announced disappointing results for its 1982 Beaufort Sea exploration program. No oil had been discovered and, of three gas wells tested, two were dry and one flowed gas at modest rates. At a time when the company was beginning to experience serious financial difficulties, the continuing negative results in its Beaufort Sea program were adding to the company's problems.

**Petro-Canada's
acquisition of
Petrofina
criticized by the
Auditor General**

In his Annual Report, released in December, the Auditor General was highly critical of Petro-Canada's take over of Petrofina Ltd. at a cost of \$1.7 billion, without providing the federal government with any information to show it was a wise acquisition. The observations relative

to Petro-Canada were made in the context of the Auditor General's concern that Parliament lacked control over Crown-owned companies which he viewed as having little or no public accountability.

COSP reaches
16% of its 1990
target

By the end of December, the Canada Oil Substitution Program (COSP), which had been announced in October 1980 as part of the NEP and had been operative for over one and a half years, had assisted in the conversion of over 384,000 residential housing units from oil to other energy sources or had assisted in insulation programs. The targeted number of conversions for COSP of the entire program was 2,341,000 housing units by 1990, and 16 per cent of this target had been met. COSP and other conservation and off-oil programs had resulted in a 10 per cent decrease in oil demand in 1982.

Electrical energy
forecasts
lowered

The climate of uncertainty with respect to electric utility expansion programs led utilities in December to revise their demand forecast downward for the period 1982-2000. Average annual growth rates were adjusted as follows:

| | <u>Previous Estimate</u> | <u>1982 Estimate</u> |
|---------------|--------------------------|----------------------|
| Ontario Hydro | 3.2% | 2.2% |
| Hydro-Quebec | 4.6% | 3.7% |
| B.C. Hydro | 5.0% | 4.1% |

Exploration
agreements in
1982

By December 31, a total of 47 oil and gas exploration agreements had been completed by the Canada Oil Gas Lands Administration (COGLA) under terms of the Canada Oil and Gas Act, as proclaimed on March 5, 1982. Terms of these agreements ranged from 18 months to six years and covered some 26 million hectares of land with 65 exploratory wells being planned. The agreements were estimated to generate a potential of over \$3 billion of activity. At the end of December, about 150 exploration agreements remained to be negotiated in the Canada Lands. The tempo of activity in the frontier areas was high while the industry in western Canada was facing problems of shut-in capacity and reduced activity.

Conservation and
Renewable Energy
Demonstration
Agreements

By the end of December, contributions to the Conservation and Renewable Energy Demonstration Agreements (CREDAs) had totalled \$59 million, including \$35 million from the federal government. In 1979 the federal government had begun entering into jointly-funded five-year agreements with the provinces and by the end of 1982 a total of 265 projects were underway. The program was designed to demonstrate new technologies in conservation and renewable energy applications. Agreements were in place in most provinces.

Urea
formaldehyde
foam insulation
grants (UFFI)

At the end of December, the federal government announced an increase in the financial assistance to homeowners in removing urea formaldehyde foam insulation from their homes. Grants were increased by \$500 to a total of \$5500. In December 1981, an assistance program had been announced, aggregating \$110 million. This announcement had followed from a December 18, 1980 ban, as a health hazard, on the use of urea formaldehyde. A bill authorizing \$5000

tax-free grants for remedial work on homes with this insulation was passed in July 1982, providing for assistance to some 80,000 homeowners who had used this form of insulation.

**Supreme Court
approves
challenge to
pre-build**

On December 21, the Supreme Court of Canada ruled that Ian Waddell (MP for Vancouver-Kingsway) could legally proceed with his challenge of a 1980 federal cabinet decision authorizing the pre-build of Canadian sections of the Alaska Highway natural gas pipeline. He had launched a lawsuit to get the courts to rule on Cabinet's right to authorize the pre-build without amending legislation. The B.C. Supreme Court was scheduled to hear the case in May 1983. The suit had been tied up for two years by challenges to his right to launch the case.

**NEP initiatives
in review - 1982**

From the perspective of the developing energy situation in December, it was apparent that the many initiatives of 1982, including those provided for in the Energy Update 1982 report issued in May, were attempting to deal with problems of declining oil and gas industry activity in western Canada. Considerable shut-in capacity had developed in the region's oil fields due to the fall in domestic demand. That in turn was due in considerable part to the impact of NEP energy conservation and off-oil programs. The softening in world oil prices, in contrast with the expectations of the Canada/Alberta September 1981 Agreement of rapidly increasing prices, had removed the incentive for new exploration ventures except in Canada Lands frontier areas where the smaller companies did not normally operate. Shut-in capacity was also developing in the gas fields of western Canada due in part to decline in demand in the export market, and many price and marketing initiatives were taken by the federal government during the year to try to improve the domestic market for natural gas. Success in these endeavours further diminished the opportunities for oil marketing. Consequently, a number of components of the NEP were working against each other in a declining energy market due to the general economic recession in the early 1980s and progress in the more efficient use of energy. Reference is made in the previous notes for 1982 to the many initiatives to increase the use of natural gas in the domestic market, including the following:

- the Canada Oil Substitution Program providing \$800 grants for conversion of oil-based systems to alternative fuels;
- extension of the Trans Quebec & Maritimes Pipeline eastward in Quebec towards the Maritimes;
- the \$100 million Gas Marketing Assistance Program to assist Quebec distributors in promoting natural gas in new franchise areas;
- the \$500 million Quebec natural gas pipeline laterals program;
- the Distribution System Expansion Program to assist utilities to expand into new market areas;

- the \$25 million Industrial Conversion Assistance Program to assist in converting from heavy oil use to natural gas.

Many initiatives were also taken in an attempt to improve the economics of oil production and marketing, including the following:

- implementation of the Petroleum Incentives Payments (PIP) program, with an initial budget of \$1.9 billion through to March 1983;
- broadening the application of the New Oil Reference Price (NORP);
- creation of the Special Old Oil Price (SOOP) category for oil discovered after 1973, being set at 75 per cent of the world price;
- reduction in the tax incidence - PGRT, IORT, etc from levels originally announced in the NEP;
- special measures to promote the export of heavy crude oils;
- restraint measures, through modification to the Oil Import Compensation Program, directed at oil import restraint;
- assistance in moving Alberta crude oil east of Montreal to the Maritimes by the Domestic Transfer Compensation Program.

THE YEAR 1983**Domestic oil
price
adjustments**

Effective January 1, the Petroleum Compensation Charge (PCC) was decreased by \$16.00/m³ (\$2.54/bbl), and the average wellhead price was increased by \$25.17/m³ (\$4/bbl) with this increase being passed through to consumers of petroleum products on March 2. This meant a 1.6¢/litre drop in prices followed by a 2.3¢/litre increase 60 days later. Subsequently, on March 15, when the international price of oil was reduced from \$34.00 (U.S.) to \$29.00 per barrel, the setting of domestic prices became the centre of much debate in Canada.

**Scotia Coal
Synfuels Project**

In January, the federal government entered into negotiations with the Scotia Coal Synfuels Project consortium in Nova Scotia for a \$750,000 contract to test Cape Breton coal in a new, high-yield liquefaction process. The contract was part of a one-year, \$1.25 million project planned by the consortium to determine the suitability of Nova Scotia coal for commercial liquefaction. In February, questions arose in Parliament as to whether the former Minister of Energy, Mines and Resources, a principal in the consortium, was in a conflict of interest position as federal funds would come from an oil substitution program for which the former Minister had held responsibility. The government's position was that the former Minister had not been granted access or preferential treatment in the previous two years. On February 23 and March 3 all documents relative to the Synfuels project and the related controversy were tabled in the House of Commons. In May, the government announced that it had withdrawn its offer of \$750,000 for the project although Nova Scotia would be provided with funds under terms of the Canada-Nova Scotia Agreement on Oil Substitution and Conservation if it decided to go ahead with the feasibility work to test the proposal on its technical merits. Federal aid in the form of a \$750,000 grant was not provided in 1983 but the consortium, including the Cape Breton Development Corporation, continued some test work during the year.

**NEB gas export
hearings -
exports approved**

In January, the National Energy Board issued licences authorizing national gas exports of 12.2 exajoules (11.5 million cubic feet), which amounted to about two-thirds of what the NEB had found to be surplus to domestic needs. On March 31, the federal government approved the new licences although the NEB expected that little of the gas approved for export would move to U.S. markets before the end of 1984 because of the gas surplus in that country. The NEB recommendations followed major hearings which commenced in March 1982, the Phase I report having been issued on May 14, 1982 and the Phase II and III reports and recommendations on January 27, 1983. The amount authorized for export was less than half of the 26.5 exajoules requested by the 13 companies that took part in the Gas Export Omnibus Hearing held between March and November 1982. Dome Petroleum was granted a licence to ship 2.4 exajoules of LNG to Japan in the 15-year period 1986-2001 and the remaining 9.8 exajoules was to be exported to existing and new markets in the U.S., mainly in the period 1985-1994. The new exports of 12.2 exajoules were in addition to the 12 exajoules remaining to be exported under existing licences. The previous major export authorizations were made in November 1979 when

licences for 4.1 exajoules were issued. The January 27, 1983 Reasons for Decisions report of the NEB provides an important record of natural gas supply and of marketing expectations in the early 1980s.

Oil industry prospects dependent on price trends - exploration low but rigs returning from the U.S.

In reports issued early in January, the Canadian Petroleum Association and the Independent Petroleum Association of Canada predicted somewhat better oil industry prospects for the coming year as federal and provincial oil policy initiatives of 1982 began to take effect. However, the great deal of uncertainty surrounding the international price of oil was having a direct impact on the Canadian pricing regime. In February the drilling industry was reporting its lowest level of activity in seven years and various sectors of the petroleum industry were pressing for changes in the oil-pricing structure and in natural gas marketing policy as means of boosting exploration activity in western Canada. Notwithstanding the uncertain conditions in the domestic industry, a growing number of Canadian oil companies, that had left Canada in the early 1980s for the U.S. when prospects seemed better, were returning their drilling rigs by mid-1983 because of depressed conditions in the U.S. industry and unfavourable exploration results in poor producing areas. The U.S. boom had peaked in mid-1981 shortly after some 300 Canadian companies had moved about \$3 billion and 114 drilling rigs into U.S. oil development.

The shut-in capacity issue as related to oil trade

The degree of shut-in capacity in western oil and gas fields in January and through 1983 remained a barometer of the viability of the industry. In January, Alberta had 200,000 barrels a day of light crude oil that could not be marketed. In complaining about this situation in February, the Independent Petroleum Association of Canada claimed that 100,000 b/d of shut-in production was costing industry \$1.5 billion, on an annualized basis and recommended that refiners be forced to take all domestic oil nominated in a given month and that short-term exports to the U.S. should be allowed. By April, the Alberta government was complaining that markets for its oil were being lost to costly imports in eastern Canada and it was pressing for the NEB to accept a negotiated price between U.S. buyers and Canadian sellers with the existing domestic price as a floor. By June, initiatives by governments and industry had raised Alberta and Saskatchewan oil production to capacity levels and Canada became a net exporter for the first six months of 1983 as a result of increased exports and cutbacks in imports. This followed in particular from a decision taken by the NEB in February to approve light oil exports for the first time in five years.

Gallup on nuclear energy

In January, a Gallup pole found that only 20 per cent of Canadians surveyed believed that Canada should increase its nuclear power generation. This compared with 31 per cent in a pole taken early in 1982 and 41 per cent in 1976.

Lepreau contracts for Saskatchewan uranium and prepares for expansion

In January, the Saskatchewan Mining Development Corporation and New Brunswick Electric Power Commission (NBEPG) signed a long-term contract to supply Saskatchewan uranium concentrate to the Point Lepreau nuclear generating station. At full capacity, Lepreau would use 200,000 lb of

U₃O₈ per annum and all of this was to come from Saskatchewan. NBEPC had recently received National Energy Board approval to export 335 megawatts of electricity per annum to the U.S., to 1990. In April, Atomic Energy of Canada Limited and NBEPC commenced a feasibility study on a second 600-megawatt Lepreau nuclear reactor primarily to export power to the U.S. early in the 1990s, to determine whether such an expansion would be commercially feasible. First electricity was produced at Lepreau in September 1982 and it was declared in service on January 31, 1983.

**Quintette and
Bullmoose coal
mines, N.E.B.C.
- price problem
before start-up**

In January, Quintette Coal Ltd. signed a \$950 million loan agreement with a group of 55 international banks for the development of its coal-mining project in northeastern B.C. The loan, one of the largest mine project financings ever completed, together with \$350 million put up by sponsoring shareholders, gave the company \$1.3 billion to develop its project which was designed to produce about 5 million tons of coking coal and 1.3 million tonnes of thermal coal annually beginning in 1984 to supply Japanese markets over 15 years. The project involved four surface coking and thermal coal mines, with mining development having commenced at the first pit in 1982. Planning for the Quintette operation and the neighboring Tech-Bullmoose Coal Inc. mine began in 1976. The first electrified railroad in North America would transport coal from the two mines 130 km south to Anzac, 125 km north of Prince George, where the coal would travel along B.C. Rail's main line to Prince George and then westward to Prince Rupert by CN Rail. A coal terminal was being established by Canada Ports Corporation and Federal Commerce and Navigation Ltd. near Prince Rupert where ships could be loaded at a rate of 9,000 tonnes per hour. Quintette was said to have a coal reserve in excess of 5 billion tonnes, representing a reserve life of 40 years at planned production rates. Bullmoose had reserves of 80 million tonnes for its estimated annual production of 2.3 million tonnes. Total capital investment for the two properties was estimated at \$3 billion. It was expected that exports from Quintette and Bullmoose would generate (in 1983 dollars) a balance of payments surplus of \$5.5 billion over the following 20 years. However, by the mid-1980s, mining and marketing difficulties were lowering the expectations for this major regional development. By August, Japanese buyers were indicating that they wanted a price reduction of 15-20 per cent on the negotiated price of \$Cdn 94 per long ton for Quintette coal and \$96 for Bullmoose coal and reductions in negotiated volumes.

**Coal markets
decline**

While the northeast B.C. coal megaproject was preparing for production in January, there were already signs that Canadian coal exports projected for the mid-to-late 1980s could be delayed several years as a result of shrinking world coal markets. By March, B.C. coal producers were facing a \$100-million cut in revenues for the next fiscal year, particularly as a result of a cut of \$13 (U.S.) a tonne in Japanese contracts with southern B.C. producers. Japanese steel production had fallen to a 10-year low and coal imports were expected to be down about 30 per cent.

Uranium marketing
arrangement -
international

Two federal Crown corporations, Uranium Canada Limited and Eldorado Nuclear Ltd., contended in the Supreme Court of Canada on January 27 that they were immune from prosecution on charges of conspiring to form a uranium cartel, being servants of the Crown. Their position was that the Crown corporation was the "alter ego" of the Energy Minister and the Cabinet who were carrying out government policy, and nothing more. At the end of the year, in December, the Supreme Court ruled that the two alleged conspirators, Eldorado and Uranium Canada, could not be prosecuted because they were Crown corporations. Shortly after, the Federal Justice Minister stated that the federal government was dropping price-fixing conspiracy charges against four private uranium companies because the continuance of the prosecution would be unfair in view of the charges against the Crown companies being dropped. The companies had been charged under anti-combines laws in 1981.

Newfoundland
offshore
negotiations
collapse

On January 26, the Minister of Energy, Mines and Resources in a news conference stated that he had concluded that the Newfoundland government was not interested in a negotiated settlement of the offshore resources problem. He claimed that Newfoundland had left the negotiations, while Newfoundland advised that talks would not be resumed until the federal government response to 17 major points had been received. The federal position was that the courts must now decide. During House of Commons debate on February 21, related telex messages exchanged between the two governments and the points of agreement before the negotiations collapsed were documented.

Petrochemical
industry
problems

The Canadian petrochemical industry experienced substantially reduced earnings in 1982 and by January 1983 was in a weakened and vulnerable state. Western Canada gas-based companies starting up new plants, and many established companies in the Sarnia-Montreal producing centres that were dependent on oil-based feedstocks, were hard hit. Earnings were insufficient to cover operating costs in the case of Montreal's primary petrochemical feedstock producer (PetroMont), and to cover debt servicing in the case of the larger of the two Sarnia producers (Petrosar). In the 1970s, the industry had been reasonably successful as a result of improved access to foreign markets and significant feedstock cost advantages as oil prices outside of Canada accelerated. World scale plants were built in eastern Canada, and by the late 1970s Alberta's petrochemical boom was underway. During 1983, remedies were being sought following in-depth study of the industry in 1982 by the Interdepartmental Task Force on the Petrochemical Industry.

Canada-U.S.
Consultative
Mechanism -
priority on
natural gas
marketing
problems

On February 1, there was a meeting of the Canada-U.S. Consultative Mechanism which was established in March 1979 to provide a means for the two countries to keep each other informed of new developments in their own energy situations and to raise any problems they might have with the other country's policies, and thereby enhance bilateral cooperation in the energy field. It had met several times after being established but had not met since December 1980 although there had been various ad hoc meetings to discuss

Canada-U.S. energy investment issues in 1981 and 1982 when the NEP was a matter of some concern to the U.S. government. At the February 1983 meeting, there was a discussion of current petroleum and electricity trade matters but particular attention was directed to natural gas trade. In view of problems affecting natural gas markets, it was agreed to continue the dialogue on related issues and further meetings were planned. Meetings were held on March 17 and September 28 when the focus was on natural gas trade. The U.S. side advised that its market was moving rapidly towards a buyer-seller negotiations basis. Canadian moves to adapt to the rapid changes in the U.S. market were useful but the U.S. called for abandonment of the uniform border price and the extension of buyer-seller negotiations. The Canadian side re-affirmed its objective of remaining competitive in the U.S. market.

Pressure for deregulation

In February, the U.S. Federal Energy Regulatory Commission warned Canada that unless natural gas prices were cut in both countries, up to 10 per cent of the gas market would be lost to cheap, low-grade fuel oil. Legislation was being prepared in the U.S. for natural gas deregulation so that a true market system could ultimately prevail. In a May 18 address to the Independent Petroleum Association of Canada, the Alberta Energy Minister reiterated his government's position on the importance of moving to market pricing of oil and gas, a position taken by Petro-Canada in February. A survey conducted by the Canadian Federation of Independent Business in June showed that 54 per cent supported the concept of allowing domestic crude oil prices to rise to world levels in place of the existing mechanism which set the price of most Canadian oil at a maximum 75 per cent of the world price, except oil classified under the New Oil Reference Price (NORP) system. Interest in deregulation continued throughout the year and a number of measures were taken to modify the pricing system including Volume Related Incentive Pricing for natural gas, initiated in July.

Super Energy-Efficient Program for house construction

During February, a number of initiatives were taken to advance energy conservation and renewable energy objectives. On February 5 EMR and the Housing and Urban Development Association of Canada (HUDAC) signed an agreement that would assist in the construction of up to 300 super energy-efficient houses across Canada, this being part of the federal government's Super Energy-Efficient Program (SEE Program), launched in October 1982, which had a budget of \$6 million for training builders in the techniques of constructing and marketing super energy-efficient houses, called the R-2000 Home. Under the SEE Program, builders selected to construct an R-2000 Home would receive a contribution of \$6500 to help offset costs associated with participation in the demonstration program. By September, 270 builders from across Canada had been selected to build R-2000 homes which were designed to provide as much as a 60 to 80 per cent reduction in space heating energy demand and up to a 50 per cent reduction in hot water energy requirements. The program appeared to be quite successful and was having a significant impact on the

building industry. HUDAC coordinated the building and demonstration of the R-2000 homes, recommended builders and implemented builder training and educational activities.

**Compressed Natural
Gas Program
for vehicles**

In February, the federal government announced two new programs designed to support the use of compressed natural gas (CNG) as a alternative to oil as a vehicle fuel. One program provided a taxable contribution of up to \$50,000 for each of some 125 fuel station operators who wished to install a CNG outlet. The second program offered taxable contributions to both commercial users and private consumers of up to \$500 towards the estimated \$1800 cost of converting a vehicle for CNG use. A target of 35,000 conversions had been set for this program, to be in effect from April 1, 1983 to March 31, 1987.

**Natural Gas and
Gas Liquids Tax
reduced to keep
gas competitive
in eastern
Canada**

On February 1, the federal government reduced the Natural Gas and Gas Liquids Tax (NGGLT) by 18 cents per thousand cubic feet in order to keep the wholesale price of gas from rising above 65 per cent of the cost of an equivalent amount of oil in eastern Canada. The September 1981 agreement between the federal and Alberta governments had provided for an increase in the price paid to natural gas producers every six months in the expectation that the price of oil would continue to rise. Because oil prices had not risen, in order to provide for the February 1 scheduled increase of 25 cents/Mcf the federal government had no alternative but to reduce its NGGLT. This was one of a series of price adjustments that became necessary as the oil price increase expectations of the 1981 agreement failed to be realized. By March, with oil prices in decline, the federal government was foreseeing difficulty in relation to the scheduled increase in the natural gas price for August and was considering the possibility of having to raise the ceiling to 70 per cent of the oil price.

**Banks concerned
about oil
pricing**

In February, Canadian banks were expressing concern about the \$20 billion lent to Canadian energy companies that were now being squeezed between the NEP policy of holding most oil prices to no more than 75 per cent of world prices and an onerous tax structure predicated on prices much higher than the current levels. While some of the taxes had been rolled back in mid-1982, they were scheduled to be restored in June.

**Newfoundland
loses in Court
decisions on
offshore
ownership**

On February 17, the Newfoundland Court of Appeal ruled that Newfoundland does not own offshore resources off its coast. The Court concluded that Newfoundland did not exert control over its claim to offshore areas when it was a sovereign state before joining Canada in 1949, and it did not own offshore resources as the United Kingdom did not pass a law or order-in-council exercising Newfoundland's right to claim ownership. Later in the month the federal government's contention that it controlled the Hibernia oil field area off the Newfoundland coast was being heard in the Supreme Court of Canada on a reference of May 19, 1982. Lawyers for the federal government were urging the Court to reiterate a 1967 ruling that gave the federal government ownership of undersea resources off the B.C. coast, contending that the Newfoundland situation was

identical to that of the west coast. On March 8, 1984, the Supreme Court ruled on the federal reference of May 1982. The Court's unanimous decisions were that Canada, not Newfoundland, has the right to explore and exploit the mineral and natural resources in the area of the Hibernia field, and also has the right to make laws in relation to the exploration and exploitation of those resources.

**NEB warns against
Scotia Shelf
offshore over-
optimism**

In February, the chairman of the Natural Energy Board, in a paper given at the Canadian National Energy Forum, warned against high expectations in regard to early benefits from Nova Scotia offshore gas development. He noted that the U.S. gas market was in disarray and moving towards more competitive pricing, and would likely remain volatile for several years. Scotia shelf producers were counting on some export market opportunities. Similar warnings were given in June by the Economic Council of Canada at a time when offshore exploration was at an all-time high. By the late 1980s, Scotia Shelf gas resources remained undeveloped and exploration activity was at a low level.

**Gas and oil
resources of the
Arctic Islands**

In February, the Geological Survey of Canada updated its oil and gas resource appraisal of the Arctic Islands. It had been 20 years since the first Arctic Islands exploratory well had been completed at Winter Harbour, Melville Island and, in the meantime, industry had expended one billion dollars on exploration programs and had drilled 161 wells, resulting in the discovery of 12 trillion cubic feet of gas reserves and 300 million barrels of oil. Total gas resources were estimated at 92.4 trillion cubic feet while the oil potential was estimated at 4.8 billion barrels, both resource estimates being on an average expectation basis.

**Energy Monitoring
Act proclaimed
to replace
PCM Act**

The Energy Monitoring Act was proclaimed on February 24, confirming the federal government's mandate embodied in previous Acts to obtain information on the operations of petroleum corporations in Canada. Information collected under the Act is published semi-annually in Petroleum Monitoring Agency reports, providing timely information on the activities and financial performance of the petroleum industry in Canada. Information had previously been obtained under the authority of the Petroleum Corporations Monitoring Act, enacted on June 30, 1978.

**Uranium resources
appraisal**

In February, the Uranium Resource Appraisal Group (URAG) of EMR released its interim revised estimates of Canada's mineable uranium resources as of December 31, 1981. In price ranges of up to \$110/kg U, measured resources of uranium amounted to 45,000 tonnes U, with an additional 5,000 tonnes for the price range \$110 to \$160/kg U. For the price range \$160 to \$320/kg U, there was an additional measured resource of 24,000 tonnes U, for a total measured resource of 71,000 tonnes. In the indicated resources category, there was a total of 206,000 tonnes U, and in the inferred category, 225,000 tonnes over the price ranges of \$110 to \$320/kg U.

World oil price
declines by \$4
- impact on
Canadian
situation and
price options

On March 14, the 13 OPEC members agreed to cut their official bench mark oil price to \$U.S. 29 from \$U.S. 34 a barrel and to implement a set of individual production quotas in an effort to avert a price war over the shrinking world market. The \$5 cut was the biggest in OPEC's 22-year history. Before the price change, oil had been selling on the spot market for \$U.S. 27.50. OPEC members agreed to reduce their overall production ceiling by one million barrels a day to 17.5 million for the remainder of 1983. Because of the four to six month lag in the calculation in Canada of international prices, the mid-March OPEC price drop would not begin to influence the Canadian price until July and not fully until September. However, the deterioration in the import cost prior to March put the conventional 'old' oil prices (COOP) beyond the 75 per cent ceiling in June, and with it the Special Old Oil Price (SOOP) supplement, initiated in May 1982, disappeared. During the spring of 1983, there was debate in Canada as to the price ceiling prescribed by the September 1, 1981 Agreement between the federal and Alberta governments, with the federal government indicating that the \$4.00/bbl price increase that had been scheduled for July 1, 1983 would not occur and that prices could, according to the Agreement, be rolled back. This position was strongly contested by Alberta. By the late spring, it was clear a new agreement, or an amendment, would be required. In an address on April 14, the Minister of EMR reviewed the oil price situation, noting that the 'old' oil price was limited by the 75 per cent cap as prescribed in the September 1981 Agreement, and he referred to the adverse effect that a rollback of prices would have on the producing industry although there would be considerable benefits to consumers. Options included an extension of the world price to more categories of production, and decontrolling the price of Canadian oil so that the domestic price would be at world levels. These considerations led into Federal-Alberta negotiations which resulted in the 1983 Amending Agreement (see note for June). In the meantime, the oil price increase scheduled for July 1 was cancelled. Inasmuch as the September 1981 Agreement assumed a world oil price in 1983 of \$U.S. 42 per barrel, the actual \$29 price meant a decline in federal tax revenues in 1983 to \$7.8 billion, from \$11.4 billion had prices reached the expected level.

NEB Act amendment
re. power line
and pipeline
rights-of-way

On March 1, Bill C-60 an Act to amend the National Energy Board Act was proclaimed to provide new measures to protect the rights of landowners affected by the construction of pipelines across Canada and power lines under federal jurisdiction. New expropriation procedures gave landowners the right to local public hearings and there were also new procedures of negotiation and arbitration to settle questions of compensation arising between companies and landowners. Previously, expropriation of lands for a pipeline route followed under provisions of the Railway Act of 1919. Newfoundland expressed dissatisfaction with the legislation in relation to power lines right-of-way, having wanted more explicit wheeling rights across Quebec for its Labrador power.

**National Energy
Audit Program
(NEAP) starts**

In March the federal government signed agreements with Quebec, and with B.C. in April, and later with other provinces, to fund the National Energy Audit Program (NEAP). The agreements, to terminate on March 31, 1984, extended and expanded the National Energy Bus Program which had been operating in several provinces since 1978. The energy buses were equipped to perform on-site energy audits and thereby assist industry in planning for more effective use of energy sources through energy conservation initiatives. Program costs were shared on a federal/provincial 80/20 basis.

**Oil refinery
closings**

In March, Esso Petroleum Canada announced that it would suspend operations at its 80,000 barrel a day refinery in Montreal at the end of 1983 because of the decline in demand for petroleum products. The decision to close the Montreal refinery was based on market studies of the economic future of its three eastern refineries. In September 1982, BP Canada Ltd. had announced the closing of its Montreal refinery and Shell, its Oakville, Ontario refinery, both scheduled for mid-1983. Texaco Canada Ltd. closed its Montreal refinery in October 1982.

**Petro-Canada to
promote CANMET
oil process**

In March, Petro-Canada decided to invest \$135 million at its Point-aux-Trembles refinery in the hydrocracking process developed by the Canada Centre for Energy and Mineral Technology (CANMET) of EMR. The CANMET process is designed to extract gasoline and heating oil from heavy crude oil more effectively than traditional processes. The project was scheduled to go into production in 1985. Petro-Canada, in cooperation with the Montreal consulting firm Lavalin, hoped to market the process internationally.

**Petro-Canada
acquires BP
Refining and
Marketing Ltd.**

Effective March 1, Petro-Canada acquired 100 per cent of the outstanding voting shares and 9.4 per cent of the outstanding non-voting shares of BP Refining and Marketing Canada Limited, subsequently re-named Petro-Canada Products Inc. The shares were acquired at a cost of \$115,781,000. Under the offer, Petro-Canada had to acquire all of the outstanding non-voting shares, not previously acquired, in 1984 and 1985 at purchase prices reflecting an escalation in the initial price offered. The estimated total cost of the acquisition was \$416,017,000. Under the purchase arrangement, Petro-Canada acquired 1,640 BP service stations in Ontario and Quebec and BP's refinery in Oakville. BP Resources Canada Ltd. would continue to operate the exploration and production components of the original company while Petro-Canada would acquire the refining and marketing components.

**Dome Petroleum's
financial
woes - debts
deferred**

Through 1983 Dome Petroleum continued to stagger under its \$6.5 billion long term debt, with its bankers waiving February 28 and March 31 deadlines for repayment of over \$1.1 billion then due while the banks tried to reach a broader refinancing package to save the company from bankruptcy. Loan repayments continued to be rolled-over monthly, from September 1982 when a large debt came due. By November 1983, it amounted to over \$2 billion. In November, Dome prepared debt rescheduling plans as an

alternative to the financial assistance offered by the Government of Canada and four Canadian banks in September 1982 (see note for November 1983).

COGLA Annual
Report-Canada
Lands agreements
and exploration
activity

In April, the Canada Oil and Gas Lands Administration (COGLA) released its first Annual Report on the administration of Canada Lands under the Canada Oil and Gas Act which was proclaimed on March 5, 1982. During 1982, 47 exploration agreements for rights in the Canada Lands were negotiated under the resource management regime established by the Act, with the agreements covering 26 million hectares in the Arctic and East Coast offshore. The agreements called for 65 wells to be drilled in the period 1982-1988 at an estimated cost of \$3 billion. During 1982, 23 exploratory wells were drilled, one more than in 1981, and three oil discoveries and six gas discoveries were made.

Gas export price
cut to hold
place in tight
U.S. market
- outlook
uncertain

On April 11, the Minister of Energy, Mines and Resources announced in an address to the Calgary Chamber of Commerce that the export price of Canadian natural gas would be reduced by 11 per cent, from U.S. \$4.94 per million Btu to \$4.40/MMBTu. At this time, the Minister reviewed the circumstances of the declining U.S. gas market and the increasing difficulties Canada was facing in that market. Since 1976, total U.S. natural gas demand had declined from 20 trillion cubic feet to 18 tcf in 1982. Because of supply shortages in the mid-1970s legislation had been enacted in 1978 which provided high incentive prices for new gas. This led to an exploration prices boom in the U.S. which reversed the declining gas reserve situation. At the same time, there was emphasis on fuel switching and energy conservation which began to drive gas demand down while reserves were increasing leading to a surplus condition in the early 1980s. The changing supply/demand situation in the U.S. impacted on Canadian gas exports which in 1982 had fallen about 75 per cent from their peak in 1979. As a result, Canadian companies were able only to export half of the volumes of gas authorized for sale in the U.S. market by the National Energy Board. This situation for Canadian exporters continued to deteriorate in 1983 and other measures were taken (see note for June on Volume Related Incentive Pricing). A common view of the industry in 1983 was that gas producers could face a long wait - possibly until the end of the decade - before Americans ordered new contracts because of the U.S. gas over-supply and the gradual declining consumption of energy sources over the long-term. However, there was also a view that Canada should not bow to increasing pressure from the U.S. to reduce gas export prices further, but should maintain flexible policies so that prices could be adjusted upward when demand strengthened.

Labrador offshore
exploration

In April, the Labrador Group, with Petro-Canada as operator, completed agreements with the federal government involving an investment commitment of \$500 million for exploration work off the Labrador coast over the period to 1987 and the drilling of 10 wells in an area of over 9 million hectares.

Gallup on
Petro-Canada

In April, a Gallup pole indicated that 45 per cent of Canadians would favour de-nationalizing Petro-Canada compared with 22 per cent in 1979.

Federal budget
changes re
IORT, PGRT, COSC
- continuing
adjustments to
the NEP

The federal budget announced on April 19 included several provisions relative to energy: the Incremental Oil Revenue Tax (IORT) due to be reinstated after a one-year suspension was to be suspended a further year to May 31, 1984; the Petroleum and Gas Revenue Tax (PGRT) would not be payable by the participants in enhanced oil recovery projects on the production revenue until all eligible capital investments had been recovered by investors; the additional income tax relating to aviation turbine fuel used on international flights and the special levy on exported marine bunker fuel would be terminated effective May 1, 1983; and the Canadian Ownership Special Charge (COSC) would be maintained at its existing level with revenues to be used in support of oil and gas exploration and development. The COSC had been initiated to finance Petro-Canada's takeover of Petrofina Canada Inc., and by April had raised enough money for that purchase. The government was facing opposition in its plan to use future revenues for financing exploration, or for any other purpose than for financing an increase in public ownership in the energy sector which was the purpose for the tax as announced in the NEP in October 1980. The COSC was expected to generate \$900 million a year on the basis of a gasoline tax of 0.8 cents per litre.

Pipeline plan for
Northern Tier
refineries
abandoned as
shortage changes
to surplus

In April, plans to construct a 2500 km oil pipeline, at a cost of \$2.8 billion, to transport Alaska crude delivered to a port on the Washington coast inland to the Northern Tier refineries in the U.S. mid-west, were finally abandoned after more than seven years of negotiations and hearings relative to the proposal. The proposal had been one of several considered since the mid-1970s to meet an oil deficit situation in the U.S. mid-west after Canada had decided it must phase out exports to that region. By the early 1980s, oil surpluses were again developing in Canada and were available for export, and the oil supply situation within the U.S. itself was improving.

Revenue sharing
- result of
poll

A poll commissioned by the Council for Canadian Unity, as reported in April, found that 44 per cent of Canadians believed that the federal government and a producing province should divide resource revenues on a 50-50 basis. Another 33 per cent thought that revenue should be shared equally by all governments, and 15 per cent believed the province owning the resource should keep the entire amount. Fifty-two per cent of Albertans and 46 per cent of Atlantic Canadians thought a producing province should have more control over oil and natural gas but only 19 per cent of the residents of Ontario, which has no coal production and only minor oil and gas production, felt the same way.

Skagit River
hydro
settlement

In April, an agreement was reached whereby British Columbia would get \$21.8 million annually over a 35 year term, Seattle would get as much as 300 megawatts of power during the periods of peak use, and B.C.'s Skagit Valley would not be flooded. The agreement, covering an 80 year

period, could be terminated by B.C. government on a five years notice after 1996. It ended threatened raising of the High Ross Dam in Washington State, which would have backed the Skagit River into B.C., flooding the valley.

Conservation, oil
substitution
trends and
accomplishments

A detailed survey and appraisal made in April of a number of federal government energy programs in operation during the previous three years indicated the scope and impact of those programs on the country's energy economy. The following notes are representative of the finding of the survey:

- The Canada Oil Substitution Program (COSP) had provided \$250 million in grants, had generated total purchases of equipment and labour of some \$640 billion, and was effecting a reduction in oil use of 10 million barrels a year.
- The Canadian Home Insulation Program (CHIP) had assisted almost 2 million households to make their homes more energy efficient and was reducing heating costs by \$500 million per year.
- The National Energy Audit Program (NEAP), formerly the Energy Bus Program, had identified cost savings of \$152 million in the previous 3 years.
- The Atlantic Energy Conservation Investment Program (AECIP) in a \$40 million program from 1981-82 to 1985-86 was projected to yield savings of 3 million barrels of oil a year.
- The Industrial Conversion Assistance Program (ICAP) to encourage the substitution of gas for heavy oil was projected to replace 5 million barrels by the fifth year.
- The Canadian Industry Program for Conservation, in operation since 1975, had by 1981 improved energy efficiency by 16.3 per cent in relation to 1972, making possible an annual saving of 80 million barrels of oil.
- The Federal Internal Energy Conservation Program (the "Save 10" program) had exceeded its target in federal buildings and by 1982-83 had achieved an accrued energy reduction of 17 per cent per year, resulting in a savings of \$290 million for 1980-82.
- The Federal Internal Retrofit Program, initiated in 1981, had resulted in on-going annual energy savings of \$5 million.
- The Federal Propane Vehicle Program, established in 1981, was expected to effect financial saving of \$4.8 million in government vehicle operation.
- The Conservation and Renewable Energy Demonstration Agreements (CREDA), operated jointly with the provinces, had by its third year, in 1983, initiated \$175 million of projects and was effective in heating cost savings of up to 50 per cent.

- The Forest Industry Renewable Energy Program (FIRE) had provided grants totalling \$58 million, was effecting annual oil savings of 7 million barrels, and had initiated private sector spending of over \$375 million on Canadian equipment and services.

In 1982, these various programs of energy conservation and oil substitution had contributed to a 4.3 per cent decline in energy consumption and a 10.9 per cent reduction in oil consumption. Along with incentives to increase energy production, these demand reduction initiatives made it possible for Canada to reach oil self-sufficiency on a trade balance basis in 1982. For all energy sources, Canada had a trade surplus of \$6.3 billion in 1982 compared with \$3.1 billion in 1981.

NEB Annual Report

On May 3, the 1982 Annual Report of the National Energy Board was tabled in Parliament. As part of its regulatory responsibilities during the year, the NEB issued major decisions for authorizations of construction of the North Bay to Morrisburg, Ontario section of the TransCanada Pipelines system and for a new route for the TransQuébec and Maritimes gas pipeline. It completed a major Omnibus Hearing on applications to export natural gas to the U.S. and Japan and commenced a hearing on the Arctic Pilot Project. It also released major decisions on applications to export electricity by Ontario Hydro, New Brunswick Electric Power Commission, and Cominco. Among its other activities, it co-sponsored with McGill University a conference on the Regulation of Pipelines in an Inflationary Era.

CANDU in Argentina completed

In May, the official opening of a 600 megawatt CANDU nuclear station took place at Embalse, Argentina. Canada had obtained a contract in 1973 for its construction. The marked decline of the Argentina peso during the mid-1970's had created a number of financial difficulties for the project and resulted in a \$130 million loss for AECL due to inflation and the absence of a cost-control clause in the contract. Canada had won a contract for the project with the Italian firm Italimpiante over seven other bidders.

Wolf Lake oil sands project

In May the federal and Alberta governments announced that federal tax relief granted in the April budget had enabled BP Exploration Canada and Petro-Canada to proceed with their proposed \$200 million Wolf Lake oil sands project. The project was scheduled to be operational in 1985 at 7000 barrels a day and could be expanded. This was the first initiative in oil sands development since the suspension of the Alsands megaproject by the Alberta government on October 30, 1980.

U.S. criticism of NEP

In May, the U.S. Ambassador to Canada made a public statement on Canadian energy policy, describing the "retroactive" measure in the National Energy Program (NEP) as the most divisive issue in Canada-U.S. relations. He directed particular attention to the provision whereby the federal government, through a Crown company such as

Petro-Canada, could acquire a 25 per cent interest in a resource development project at any time prior to authorization of a production system for a particular field.

Domestic Transfer
Compensation
Program extended

On June 7, the minister of EMR announced that the federal government was extending the Domestic Transfer Compensation Program for western Canada crude oil, as introduced in July 1982, to December 31, 1983 in the light of potential shut-in capacity in oil fields during the second half of 1983. The program had enabled the movement of about 8500 cubic metres per day of Canada's crude east of Montreal to refineries in Saint John and Halifax. For shipments to the end of March 1983, about \$36 million had been paid to cover associated transportation costs. For the nine month period ending March 31, 1983, the oil import compensation saving had amounted to about \$125 million, with a compensation ceiling for this ship movement east of the Interprovincial Pipe Line terminal at Montreal being \$20/m³. Later in the year, on December 6, the government announced that the program would be extended to June 30, 1984. For the 14-month period ending August 31, 1983, the oil import compensation saving had been about \$200 million as a result of the displacement of foreign crude oil imports. The program to that date had cost \$50 million.

CPA oil reserve
estimate

Early in June, the Canadian Petroleum Association (CPA) published its oil and gas reserve estimates, effective December 1982. The amount of recoverable oil in Canada dropped by 4 per cent in 1982 as conventional oil reserves in western Canada declined for the 13th consecutive year leaving 1982 year-end reserves at 6.4 billion barrels. Total reserves of marketable natural gas continued to climb despite a 20 per cent decline in the level of drilling activity associated with gas exploration. Estimates released by the Alberta Energy Resources Conservation Board confirmed these trends for Alberta.

NEP working
badly

A C.D. Howe Institute study released in June concluded that the National Energy Program (NEP) was working badly and changes were inevitable. The report, "Lessons from the National Energy Program", claimed that the federal vision for energy had been badly shattered by unforeseen developments in the rest of the world, especially an oil supply surplus and a decline in price. The government was engaged in an exercise in decision-making under conditions of uncertainty, and the design of the NEP did not take uncertainty into account. At the same time, the consulting firm of Currie Coopers and Lybrand stated that the federal government's efforts to regulate energy prices had failed to adjust to market conditions and should be abandoned. Pricing policies based on the outdated assumption that world prices would continue to rise should be replaced by mechanisms that could adapt to price declines as well as increases.

Oil price
forecast to
double by
year 2000

A poll published in June by the International Institute for Applied Systems Analysis in Vienna indicated that oil prices would likely double by the end of the century, despite conservation and development of other

energy sources. The increase in the 1990s would be much greater than in the 1980s. Forces leading to price increases, such as economic growth and depletion of resources "will be stronger than those exerting downward pressure on oil prices, such as conservation responses to the events of the 1970s and the introduction of alternative forms of energy supply." The World Bank's annual survey released in July predicted that oil prices by the mid-1990s would be 20 per cent above their 1981 peak (\$US 34.00 a barrel). OPEC will continue to be the main supplier of oil as crude production declines in other parts of the world and, as a result, OPEC will continue to be influential in setting world oil prices.

**Ontario Hydro
to renegotiate
uranium
contracts**

In June Ontario Hydro indicated its intention of renegotiating major uranium supply contracts signed with Elliot Lake, Ontario, producers in 1978. The contracts secured about 200 million pounds of uranium concentrates from the two high cost mines in that area on a cost-plus basis. Supplies were scheduled to reach 7 million pounds a year in 1993, 2 million pounds above project requirements. The price projected into the 1990s would also be very much higher than the price of contracts signed with Saskatchewan producers in 1983.

**Disposal of
reactor fuel
wastes**

A Department of Energy, Mines and Resources paper given at the Annual Conference of the Canadian Nuclear Association in June noted that it would be technically possible to build a deep geological repository for the permanent disposal of reactor fuel waste and that it would be cost-effective and would meet reasonable safety goals. However, once built, there might not be any fuel wastes to put into it for 30, 40 or 50 years since the volumes of irradiated fuels produced in Canada are small and utilities are storing them economically. It would likely be several years before a decision was made as to whether the used fuel would be disposed of directly or whether it would be reprocessed and only the radioactive wastes sent to the geologic repository. The Canadian R&D program was therefore using the time available to improve our understanding of geologic disposal so that when the time comes to build a repository Canada would be in a better position to provide effective designs and assurances to the public.

**Slowpoke nuclear
reactor**

In June, Atomic Energy of Canada Limited (AECL) in a public statement announced that a new "souped-up" version of the tiny nuclear reactor, referred to as the Slowpoke reactor and used in research by six universities, could produce two million watts of electricity -- enough for more than 100 homes. It could sell for \$1 million and would cost \$200,000 a year to run. It would heat water up to 90°C, sufficient to turn an electric turbine but not enough to cause concern about high pressure vessels and radioactive steam.

**Upper Churchill
Falls power --
Newfoundland
dispute with
Québec**

In June, the Trial Division of the Newfoundland Supreme Court ruled that Newfoundland did not have the right to recall 800 MW of power from Churchill Falls. Newfoundland then appealed the decision to the Appeal Division of the Provincial Supreme Court. Newfoundland had

claimed that a clause in the water lease by which the Upper Churchill Falls site was developed gave the Province the right to recall the power. Hydro-Québec then filed in the Québec Superior Court, claiming that any such recall would constitute a breach of the power contract signed in 1969, thereby permitting it to sue Newfoundland for damage. In August, the Quebec Superior Court ruled that Hydro Québec could claim damages against Churchill Falls (Labrador) Corporation Ltd. (CFLCo) if the company delivered the 800 MW to Newfoundland that the Province had tried to recall. In September, the two provinces began exploring the possibility of a negotiated settlement and the Supreme Court of Canada agreed to delay until December 31 a decision on the Upper Churchill Water Rights Reversion Act, a Newfoundland bill adopted in 1980 that would have the effect of cancelling the 1969 contract. In December, CFLCo and Hydro-Québec began working on a package deal to reopen the Churchill Falls agreement of 1969 and jointly develop the Lower Churchill and projects on rivers running through both Labrador and Québec to the Gulf of St. Lawrence, with the objective of reaching an out-of-court decision. Until that time, Newfoundland had refused to consider further hydroelectric development with Quebec until Quebec agreed to a significant increase in the price it paid for Upper Churchill Falls power. Quebec's position had been that it would only re-open the contract as part of a package deal. Negotiations were expected to be difficult because of the wide divergence in the public positions taken by the two provinces.

Amendment of the
Sept. 1, 1981
federal/Alberta
agreement to
provide for
price changes

On June 30, the federal and Alberta governments completed negotiations leading to an amendment of the September 1, 1981 Agreement, relating to energy pricing and taxation, covering petroleum pricing through 1986. The effect was to freeze wellhead oil prices at their current level, if world prices remained stable; to guarantee that natural gas prices would not rise above 65 per cent of the price of oil; to redefine oil discovered between 1974 and 1980 and allow it to qualify for the world price; and to allow world prices for oil from "infill" wells drilled to enhance production from existing oil fields. The \$4/bbl price increase that had been scheduled for July 1 was cancelled and future increases were contingent on world oil price trends, while pre-1974 prices were still subject to the ceiling of 75 per cent of the world price. The 65 per cent of oil price ceiling for natural gas provided a continuing incentive to switch from oil to gas. The 65 per cent price relationship was to be maintained by adjusting the federal Natural Gas and Gas Liquids Tax (NGGLT); by federal funding towards pipeline transportation costs, possibly through utilization of revenue from the Canadian Ownership Special Tax (COSC); and, once the NGGLT reached zero, Alberta had agreed to adjust the Alberta border price to maintain the 65 per cent gas/oil ratio. The provision to allow oil discovered between 1974 and 1981 world prices was expected to generate an additional cash flow of as much as \$250 million in the period July 1 1983 -- December 31, 1984. Since the September 1, 1981 agreement had been signed, several measures had been implemented in the attempt to adjust the NEP and the

Canadian industry to conditions not foreseen in 1980-81. In April 1982, Alberta implemented a royalty relief program. In June 1982, the federal NEP Update had provided for considerable tax reductions. The federal budget of April 1983 had implemented further tax concessions. Those three sets of initiatives were possible under the September 1981 agreement but further action, specifically relating to pricing, required an amendment to the agreement which was accomplished on June 30, 1983.

Volume Related
Incentive
pricing (VRIP)
natural gas
exports, further
modified in
November for
difficult U.S.
market

On July 6, the federal government implemented a volume Related Incentive Pricing (VRIP) scheme for exports of natural gas to the U.S. Under VRIP, Canadian exporters were able to sell gas in excess of an established base level at an incentive price of \$US 3.17/Gigajoule (GJ) -- \$US 3.40/million British thermal units (MM Btu). Base volumes exported would continue to be sold at the uniform border price, then at \$US 4.10/GJ (\$US 4.40/MM Btu). The VRIP scheme was scheduled to be in effect from July 6, 1983 to October 31, 1984. Through incentive pricing, the federal government hoped to preserve its share of the highly competitive gas market, and possibly increase sales in certain regions. The pricing scheme was an attempt to respond flexibly to perceived short-term difficulties in regional U.S. markets in the expectation that the U.S. would continue to regard Canada as a stable, long-term source of supplementary gas supply. There was concern in Canada that the major investments made by the Canadian industry, including the pre-build sections of the proposed Alaska Highway gas pipeline, to serve the export market would not be jeopardized. In 1982, gas exports to the U.S. had earned \$4.8 billion. The VRIP initiative followed a decision made in April to lower the gas export price by 11 per cent to \$4.40/MMBtu. The VRIP offered a 23 per cent discount for gas export volumes sold above a base level. It was estimated that these price adjustments would reduce the cost of Canadian gas to U.S. consumers by \$700 - \$900 million over a two-year period. The initiative was taken at a time when legislation was pending before the U.S. Congress which would limit imports of Canadian natural gas unless the price was cut or deliveries were reduced. On November 1, 1983, the federal government implemented a modification of VRIP for the period through to October 31, 1984 whereby individual exporters were allowed to sell each month some component, of the gas exported, at the incentive price, provided that over the course of the year only those volumes above the annual base volume were sold. Under the initial plan, gas could be sold at the incentive price only after the full annual base quantity had been exported. The modification was made in view of the continuing difficult conditions in the U.S. natural gas market. The base volume for the VRIP was defined as the lesser of 50 per cent of the annual export licence quantity, or the actual quantity exported during the period November 1, 1981 -- October 31, 1982.

Syncrude oil
sands expansion

In July, Syncrude Canada Ltd. commenced a five-year \$1.2 billion expansion program at its oil sands operation in the Fort McMurray, Alberta, area. The program would increase production capacity to 130,000 barrels of

synthetic crude oil per day by 1987 from the existing 109,000 b/d. The company had been assisted by Alberta royalty relief and federal tax concessions.

**Solar energy
support program**

On July 7, the federal government announced a \$79 million solar energy support program to provide financial assistance to the solar energy industry enabling it to produce cost-effective solar systems by 1988. Of the \$79 million, \$30 million was for research and development managed by the National Research Council; \$45 million was to be used for demonstration programs, mostly as jointly-funded projects with the private sector; and \$4 million would be directed to completing commitments under the Purchase and Use of Solar Heating (PUSH) program which had been initiated in 1978 as part of a \$380 million renewable energy program (see note for July 4, 1978). The new solar energy initiative represented a culmination of efforts by federal, provincial and industry representatives to develop a new policy for solar energy in Canada. The new approach provided federal support for a planned five years in order to produce solar energy systems capable of competing on an equal basis with other forms of energy.

**Domestic natural
gas prices
remain stable**

On July 28, announcement was made of new wholesale prices of natural gas, to take effect August 1. Little change in the price to consumers was expected through to the end of 1984 under the new pricing arrangement. The small decrease effective in August reflected an increase in the Alberta border price of 23.3 cents, to \$2.63 per gigajoule, giving a \$235 million a year revenue increase to Alberta producers; a reduction in the federal Natural Gas and Gas Liquids Tax (NGGLT) to 15 cents per gigajoule from 45 cents to maintain the natural gas price at 65 per cent of the crude oil price in eastern Canada; and a 5 per cent increase in TransCanada Pipelines Ltd. pipeline transportation charges. Under this schedule, wholesale prices for natural gas in the domestic market remained relatively stable in the period from mid-1982 to the end of 1984.

**Petroleum
Monitoring
Agency survey**

The Petroleum Monitoring Agency (PMA) issued its Monitoring Survey of the Canadian Petroleum Industry for 1982 on July 26, 1983 and reported that, although revenues rose 9 per cent, after-tax profits for the industry fell to \$1.5 billion, 5.2 per cent below the 1981 level. A weak downstream performance accounted for more than one-half of the drop in profits and offset increased net income in the upstream segment. Decreased demand for petroleum products accounted in considerable part for the 69 per cent drop in downstream profits. Upstream profits rose by 21 per cent, with higher wellhead prices for oil and gas and lower provincial royalty rates being the main factors. Higher interest rates and write-downs of foreign assets decreased profits of Canadian-controlled firms to drop from \$1.2 billion in 1981 to a small loss in 1982. Canadian ownership of the petroleum industry, based on petroleum-related revenues (upstream and downstream) rose to 34.2 per cent and control to 26.2 per cent, up 1.4 and 0.3 percentage points from 1981, whereas in 1981 ownership

and control had risen 6.7 and 7.2 percentage points, respectively. The following tabulation compares upstream petroleum revenue sharing for 1981 and 1982:

| | <u>1981</u> | <u>1982</u> |
|-------------------------------------|--------------|--------------|
| Industry revenue shares | 39.7% | 40.3% |
| Provincial government revenue share | 37.3% | 32.3% |
| Federal government revenue share | <u>23.0%</u> | <u>27.4%</u> |
| | 100.0 | 100.0 |

The higher federal share in 1982 resulted from higher revenues from energy taxes -- PGRT, NGGLT and IORT. The lower provincial share resulted from lower royalty rates.

Uranium mining expansion in Saskatchewan - Canadian production grows

In July, the Cluff Lake Mining Company, operating in northern Saskatchewan, received environmental approval to proceed with Phase II of its uranium-producing operation involving the exploitation of two open-pit mines and three underground mines. Initial uranium concentrate production at Key Lake, also in northern Saskatchewan, was scheduled for August. Together with the re-opening of the Stanleigh mine in the Elliot Lake area of Ontario, and the two large operating mines in that area, the new production in Saskatchewan would enable Canada to surpass the U.S. in uranium production capacity in 1983. Canada was expected to have a uranium production capability of over 10,000 tonnes U in 1984 with a capability of some 15,000 t U by the early 1990's should market conditions warrant. Uranium production had peaked in 1959 at 15,892 short tons of U₃O₈ (12,222 t U) valued at \$331.1 million. After a rapid decline in the 1960's and a slow recovery in the 1970's production had gradually risen to 8075 t U in 1982, with shipments of 8189 t U being valued at \$815 million.

International Energy Agency (IEA) oil sharing emergency test

In July, the results of the International Energy Agency (IEA) test of emergency oil sharing, conducted in the period April 22 - June 15, were being assessed. The test, in which 21 countries and 45 major international oil companies participated, took over a year to organize. This was the fourth international test of the IEA emergency oil sharing system and, as on previous occasions, Canada was a member of a small group comprising representatives of seven governments and six petroleum companies which worked out procedural details and wrote the Test Guide. In Canada, the five oil producing provinces and 23 Canadian oil companies took part in the test under the leadership of the Energy Supplies Allocation Board (ESAB) which reports to the Minister of EMR. The IEA agreement stipulates that when supplies to the IEA as a whole are reduced by 12 per cent or more, IEA member countries must impose a 10 per cent demand constraint and draw on their emergency reserves in order to make oil available for sharing with other member countries. From Canada's point of view, the system under conditions of the test worked well and no difficulties were experienced in the volumetric re-distribution of supplies. ESAB has the mandate to prepare and administer the regulations controlling the allocation of available oil and petroleum products in

Canada in the event of a national emergency caused by supply shortages. ESAB's plans are carried out in close cooperation with the provincial governments and the petroleum industry.

Canada -
Saskatchewan
agreement on
oil pricing

On August 23 the federal Minister of EMR and the Saskatchewan Minister of Energy and Mines announced an amendment to their October 26, 1981 Agreement relating to energy pricing and taxation through to 1986. The Amendment, covering the period July 1, 1983 to December 31, 1984 followed and extended a similar accord between the federal and Alberta governments as signed on June 30, 1983. Previously scheduled wellhead price increases for Saskatchewan oil would not take place if world oil prices remained stable. Oil discovered between 1974 and 1981, previously subject to a limit of 75 per cent of the world price would now qualify for the world price which meant that about 50 per cent of Saskatchewan's production would now receive that price. The Special Oil Price (SOOP) program as announced in the NEP Update of May 1982 was, accordingly, revised so that oil that qualified under the SOOP program with its 75 per cent limit would now receive the New Oil Reference Price (NORP) supplement, effectively raising it to the international price level.

Canada -
Saskatchewan
agreement on a
heavy oil
upgrader

On August 23, the federal and Saskatchewan governments also agreed to go ahead with the first phase of a Saskatchewan heavy oil upgrading plant involving Consumers' Cooperative Refineries Ltd. (CCRL). Work on the economic and technical analysis of the project was to begin immediately, with each government guaranteeing up to \$4 million to finance the first phase. The proposed upgrader would require an investment of up to \$600 million and it would be linked with the CCRL Regina refinery which would use some of the 7946 cubic metres (50,000 barrels) of upgraded oil produced daily. The federal government undertook to provide loan guarantees for up to 35 per cent of the cost of the upgrader facility. Saskatchewan undertook a similar commitment, in addition to taking an equity position in the project. In December, the planned start-up date was re-scheduled to the fall of 1987 and the project was named Newgrade Energy Inc.

Energy R&D

On August 4, the federal government approved an additional \$31 million in energy research and development funding (R&D) bringing the total federal commitment in 1983-84 to \$333 million. The additional resources were in particular to be directed to the development of alternatives to gasoline, higher energy efficiency, development of new energy sources, and development of new technology and processes to enhance oil production in western Canada and from new discoveries in Canada's frontier. The increase in funding supported the government's policy of raising the national commitment to R&D to 1.5 per cent of the GNP by 1985. The increase brought to \$154 million the annual budget coordinated by the EMR Panel on Energy R&D. More than two thirds of the Panel's fund were being channelled through 14 managing departments and agencies, for the purchase of goods and services from consultants, industries and universities

throughout Canada. The new funding was to emphasize the importance of enhancing the commercialization prospects of technology developed through R&D.

**Remote
Community
Program
extended**

In August, the applications deadline for Phase 1 of the Remote Community Demonstration Program was extended by six months to March 31, 1984 with the completion date for the phase being September 30, 1984.

More than 400 communities across Canada, and agencies responsible for, or directly interested in, their energy supply were eligible to apply under the program. All communities in the Yukon and N.W.T. were eligible as well as communities in the provinces not connected to main electrical or gas supply sources. In Phase I, a limited number of communities were being studied to explore energy alternatives and conservation opportunities for remote communities. Phase II, scheduled for the period October 1983 - March 1986, would provide funds for a selected number of demonstration projects in remote communities. As of July 1983, 19 studies in remote communities were underway.

**Pickering
nuclear
reactor leaks**

On August 1, a radioactive leak was reported at Ontario Hydro's Pickering Unit 2. By the end of the first week of the month, three of the five reactors in the station were shut down following three unrelated incidents. By the end of September, Ontario Hydro had experienced six events with its Candu reactors but only one of the events, the ruptured pressure tube in Pickering 2, was of significance. At Pickering 2, appropriate actions were taken on August 1, before automatic shutdown and emergency cooling systems were called into play. No heavy water was released to the environment and there were no public health consequences. Examination of the pressure tube showed that a series of zirconium hydride "blisters" had formed in one area of the outside surface of the tube and the 2 metre crack in the tube had initiated at one of those blisters. On October 30, unit 5 at Pickering was shut down when it sprang a leak. At the end of the year, both units remained shut down pending decision on the amount of tube replacement that would be required.

**Northern
Pipeline Agency
(NPA) staff
reduced as near-
term prospects
for the Alaska
gas pipeline
fade**

In August, a decision was taken to greatly scale down the operation of the Northern Pipeline Agency (NPA) which had been established to supervise construction of the Alaska Natural Gas Pipeline section within Canada. That project had been in limbo for three years and in May the U.S. General Accounting Office (GAO), in a major study, had concluded that the project was beset by so many financing and marketing problems in both the U.S. and Canada that its completion even by late 1989 was doubtful. By the end of 1983, the NPA would retain a total staff of only 14 in its Calgary and Whitehorse offices. However, U.S. and Canadian sponsors remained confident that the pipeline project would be completed someday.

**EDC lifts freeze
on CANDU
Romanian loan**

In August, the Export Development Corporation (EDC) lifted a ban on a line of credit to Romania worth almost \$US 650 million for the purchase of two CANDU reactors which Canada had sold to Romania in 1978 and 1981. EDC had

signed an agreement in April 1979 to provide \$680 million at commercial rates to support CANDU sales to Romania. In March 1982, only eight months after the second CANDU agreement was signed, the Crown corporation froze all payments as Romania tried to reschedule a major international debt load.

Petro-Canada
completes
Petrofina
acquisition

In August, the remaining shareholders of Petrofina Canada Inc. voted in favour of giving up their shares to Petro-Canada in accordance with an offer made in April 1981 by Petro-Canada to purchase all of the outstanding shares. By the end of 1983, Petro-Canada had acquired the balance of the outstanding shares for a consideration of \$424,668,000. The aggregate cost to Petro-Canada of acquiring the shares of Petrofina, including related expenses, was \$1,600,476,000. The price paid per share was \$120.

Natural gas
service
completed to
Quebec City
and to many
other centres

Natural gas service to Quebec City was officially inaugurated on September 6 with the completion of the Trans-Quebec & Maritime Pipeline to that city. Construction of laterals to provide natural gas service to Grand-Mère, Shawinigan, Bécancour Industrial Park, and to most major centres in the Eastern Townships including Sherbrooke and Granby was completed by the end of 1983 by Gaz Inter-Cité Quebec (GICQ), with financial assistance under the federal Natural Gas Laterals Program. Through this, and other programs available to distributors as well as to consumers, the Minister of EMR estimated that by the end of 1986 federal assistance of more than \$700 million would have been made available to support the establishment of the necessary infrastructure and to encourage the use of natural gas in Quebec.

Report of Task
Force on
Pipeline
Construction
Costs

In September, the report of the Task Force on Pipeline Construction Costs was released. The Task Force was set up in August 1982 to recommend how the high rate of pipeline construction costs increases, identified in a National Energy Board staff study published in June 1982, could be brought under control. The Task Force study included the participation of pipeline companies, contractors, material suppliers, labor unions, oil and gas producers, and provincial, territorial and federal government departments and agencies. The report identified several causes of construction cost increases and recommended how their cost impact could be minimized. The cause of cost increases related to delays in project schedules, delays during construction, problems in the availability of human and material resources, contract-labor problems and inadequate incentives for cost control of pipeline owners. The National Energy Board undertook to prepare a complete plan of action in response to the report's recommendations relative to Board responsibilities.

Cold Lake oil
sands project
to proceed

On September 20, the federal and Alberta governments announced that final agreement had been reached with Esso Resources Canada Limited on the fiscal and commercial terms for the company's \$300 million phased Cold Lake Project. The plan was to build six phases with a capacity to produce

9,500 barrels per day of bitumen each, at a cost per phase of about \$150 million, and the first two phases to be in production by 1985. The capital cost of the six phases would be in the order of \$1.5 billion and the sustaining investment for replacement wells over the 25-year life of the project could add between \$4 and \$5 billion in additional economic benefits. About 800 replacement wells would be built over the 25-year period. The federal government agreed to provide earned depletion and a waiver of payment of the Petroleum and Gas Revenue Tax until the company had recovered its capital costs in accordance with the federal budget provisions of April 1983. Alberta's royalty regime would provide for nominal royalty payments until capital costs had been recovered, including a 10 per cent allowance on invested capital. Production from the plan would receive the New Oil Reference Price (NORP), at essentially the international level. The company noted that although each phase is smaller than the megaproject proposed in November 1977, when a project capacity of up to 140,000 barrels a day was considered, the total project, at some point, might not be different.

**West Coast
offshore
environmental
review**

In September, a joint federal-provincial environmental review to assess the effects of offshore oil and gas exploration on the west coast, north of Vancouver Island, was announced. The review was necessary before consideration could be given to lifting the federal and provincial moratoriums on exploration in the area.

**Uranium export
policy**

In September, the federal government completed a review of Canadian uranium export policy. It was decided to maintain the basic principles, as announced following a review in 1974, which were designed to ensure that Canada remained a reliable supplier of uranium to world market and to implement several modifications. Attention was directed to three elements of the policy in the 1983 review: security of domestic supply, further processing and commercial terms and conditions. With regard to security of supply, which appeared less urgent than in 1974, Ministers decided that the supply situation should be monitored on a national rather than an individual producer basis. Contracts would be approved for up to 15 years and, in the case of uranium exports associated with CANDU sales, approval could be granted for contracts which provided a uranium supply for up to 30 years for each CANDU exported. In the case of further processing, Ministers reaffirmed the policy that uranium should be upgraded to the greatest extent possible in Canada before export. In practice, this meant conversion to uranium hexafluoride (UF₆). The policy provided for the regulating agencies to consider requests for exemptions from the further processing provision if the Canadian facilities did not have the capacity or if they were not generally competitive in the world scene. Exemptions for other reasons would only be granted in the most exceptional circumstances. With respect to commercial terms and conditions, Ministers decided to reaffirm the requirement for a floor price or similar mechanism that would protect investment and employment in uranium production facilities. At the same time, the terms of sales should equitably balance benefits

and risks and should generally be in accord with those being obtained by Canadian and international producers for uranium under contracts of similar duration. It also was agreed that uranium export contracts would continue to be reviewed by the Uranium Exports Review Panel to ensure that they were consistent with Canada's policy and in the national interest. Acceptance by Ministers of the contract terms and conditions would remain a necessary step prior to the consideration by the regulating agencies of applications for export permits.

Forecasts of gas exports

Forecasts made at the World Petroleum Congress in London in September indicated that the U.S. will have a strong need for imported natural gas from Canada and Mexico before the end of the decade. Declining domestic production would leave the U.S. with a natural gas shortfall in the late 1980s. In a forecast published in October, the American Gas Association predicted that gas supplies from domestic and foreign sources could increase by as much as 43 per cent by the year 2000, filling at least 25 per cent of United States' energy needs. The levels of projected Canadian gas supplies to the U.S. market in the year 2000 ranged from 1.5 to 2.4 trillion cubic feet, compared with the 1982 level of 0.8 trillion cubic feet. During a symposium in November sponsored by the American Stock Exchange, forecasts were made that natural gas shortages would appear in the U.S. as early as 1985 and that Canada would establish itself as a "secure source of supply" in that market by the end of the 1980s.

Canada warns U.S. about natural gas trade problems

In an address to the American Gas Association in September, the Canadian Ambassador to the U.S. warned that if there was a successful U.S. attempt to drive the price of Canadian gas still lower, Canadian producers would likely leave the gas in the ground rather than lose money on exports. He noted that the Canadian government had become concerned at some of the punitive measures being put forward in the U.S. Congress against gas exports from Canada. Through price cuts and incentive programs for gas exported to the U.S., Canada had already gone the extra mile to help an American gas industry that was suffering from low demand and pricing problems. Early in the year, in June, the Premier of Alberta told a Western Governor's Conference in Montana that Alberta had suffered badly from two U.S. natural gas policies. In 1976 Canada, at the urging of the U.S. government, had set a common border price for natural gas which made Alberta gas less market competitive. Then, after agreeing to participate in the Alaska gas pipeline pre-build in 1980, Alberta was now shipping its additional natural gas supplies through an "over-built and high cost" transportation system. These matters deserved consideration in current U.S. gas price deliberations.

Provincial Ministers concerned about energy security

At the 40th Provincial Mines Ministers' Conference, held in September, the provinces emphasize the importance of long term energy security for Canada. Ministers called for closer consultation and cooperation with the federal government, particularly in energy conservation and renewable energy development. Noting the dramatic changes

that had occurred in the international energy sector since 1981, they expressed concern that "today's situation is characterized by international price uncertainty in the medium term, which may retard efforts to achieve energy security".

**Proposal for a
natural gas
pipeline to
Vancouver Island**

In September, the B.C. government began hearings to decide which of several applicants should build a natural gas pipeline to Vancouver Island. A decision had not been taken by the end of 1983. The extension of natural gas service had been considered from time to time over a period of many years. A task force report completed in February 1983 had concluded that natural gas would be the most cost-effective future energy option for most Vancouver Island communities, that the net economic benefits of such a project from a national perspective would be \$700 million, and that the federal government should provide financial support for a pipeline to Vancouver Island. The federal government's position was one of support in principle for the extension of gas service but it was prepared to discuss with the B.C. government the possibility of supporting alternatives to such a plan. In 1982 in the absence of any provincial activity with regard to a Vancouver Island pipeline, the federal government had redeployed \$500 million to the Natural Gas Lateral Program in Quebec as part of the NEP Update provisions. In 1982 and into 1983 there remained uncertainties regarding the market potential and energy prices facing the Vancouver Island gas pipeline proposal. The two major competitors for the project were B.C. Hydro which proposed a southern route at an estimated cost of \$450 million, and a consortium headed by Westcoast Transmission proposing a northern route at an estimated cost of \$600 million including a world-scale fertilizer plant at Powell River, which would double the volume of natural gas sales, and would cost \$675 million. The hearings begun in September were to determine the size of the federal capital contribution necessary to make sure there were no revenue deficiencies associated with the pipeline project. The B.C. government maintained it was still up to the federal government to provide a subsidy as promised in the NEP.

**Forecast of
offshore
economic
activity in the
oil industry**

In a Canada Oil and Gas Lands Administration (COGLA) paper prepared for the September 22 Canadian Offshore Resources Exposition in Halifax, a forecast was made that exploration expenditures between 1983 and 1986 in the Canada Lands could total nearly \$8.2 billion, aside from spending to further develop offshore fields such as Venture and Hibernia. The \$8.2 billion expenditure would be for drilling rigs and drill ships, supply and support vessels (\$4.7 billion); technical, engineering, scientific and environmental services (\$1.4 billion); drilling and wellhead equipment and supplies (\$1.1 billion); and support bases, air and barge transport, and communications (\$1 billion). It was estimated that nearly 55 per cent of this investment would be injected directly into the Canadian economy and that 93 per cent of the jobs (6,900 in 1983, 8,600 in 1984 and over 10,000 in 1985) would be filled by Canadians.

Petroleum
Incentives
Program (PIP)
under attack

During the last four months of 1983, the Petroleum Incentives Program (PIP) was the object of considerable criticism in Parliament and elsewhere. In September, there were accusations that the federal government did not have enough control over the money being handed out, and recommendations that the allowable amount - up to 80 cents on the exploration dollar - should be reduced. By that time about \$2.2 billion had been spent since the program began. There was considerable criticism also regarding the emphasis in the program to the North and offshore at the expense of western Canada. In August, in a move to gain better control of expenditures, the government had implemented regulations calling for companies to obtain prior approval in order to qualify for full PIP benefits on wells expected to cost more than \$50 million because of the government's concern about escalating drilling costs. In October, uncertainty was developing in industry about the future of the program and there were also increasing concerns about the cost of offshore exploration with the result that some companies were withdrawing from exploration programs. In a CBC TV program carried on December 8, views were expressed that frontier exploration was a huge gamble for government and industry; that PIP and the NEP represented an attempt by the federal government to wrest control of oil revenues and oil activity from the provinces, particularly Alberta; that oil companies had found loop holes in PIP; that the taxpayer ended up by paying the shot; and there were questions as to whether the massive PIP expenditures (\$4.6 billion over the period 1981/82-1984/85 and possibly as much as \$8 billion eventually) were really necessary and whether the program was out of control. The matter of PIP's cost effectiveness was debated in Parliament, a debate that escalated with the Auditor General's comments, in his Annual Report, concerning monitoring deficiencies of the program.

Coal industry
outlook

Papers presented at the Coal Association of Canada annual conference in October indicated a bright future for Canada's coal industry despite the effect of pressure from export customers to reduce price and delivery volumes. However, views were expressed that a more balanced mix of export and domestic sales should be achieved so that the industry would not be so vulnerable to the ups and downs of the international market.

Iran threatens
to block Persian
Gulf shipping

In October, Iran was threatening to blockade Persian Gulf shipping through the Strait of Hormuz if France sold fighter jets equipped with Exocet air-to-surface missiles to Iraq. The Iran-Iraq war was then in its third year. Persian Gulf oil shipments had been increasing as a result of the drop in Middle East oil prices.

Alberta Heritage
Fund - still
no economic
diversification

In a statement in the Alberta Legislature on October 5 on the occasion of the annual examination of the Heritage Savings Trust Fund, the Premier noted that Alberta's long-cherished goal of more economic diversity to lead it away from the vagaries of dependence on resources would not occur "in my lifetime". Alberta would continue to be dependent on markets for its wheat and oil. Whereas there was concern in the 1970s about basing an economy on

depleting resources, it was now the case of being faced with the dilemma of too many resources for the short and medium term and too few markets. The province needed to concentrate on resolving marketing obstacles at home and abroad. As of March 31, 1983, the Heritage Fund stood at \$13 billion. For the first year in its history, in 1982-83, investment income outstripped income from non-renewable resources. The Fund had been established in May 1976 to build up a pool of capital in support of the Alberta government's commitment to provide for the diversification of the Alberta economy in the future.

**Tidal power -
Bay of Fundy**

In October, the pre-construction phases of the proposed \$6-billion Bay of Fundy tidal power project were set aside in view of the availability of comparatively cheap oil, the lack of long-term planning by power utilities, and in particular the lack of interest on the part of potential buyers of power in the eastern U.S. The Bay of Fundy development could only proceed as an export project.

**Coleman mine
closes after 80
years of coal
production**

At the end of October, the Coleman Collieries coal mine on the Alberta side of the Crownsnest Pass closed down after over 80 years of operation. A stagnant international coal market was a principal cause and the mine had lost out to domestic sources closer to thermal power stations on the Prairies. Huge mineable coal reserves remain in the Crownsnest Pass region, available for the time when they become more economic in the domestic market.

**CANMET energy
R&D programs**

In view of continuing changes in energy supply and demand, EMR's Canada Centre for Mineral and Energy Technology (CANMET) was continuing its fossil energy R&D work, and in October was in the middle of its 1983/84 \$30 million program. Coal research was covering the whole gamut of technology from mining through processing to combustion for electricity generation. Aspects of new coal washing technology were being transferred to operating coal producers in western Canada through the use of mobile coal-preparation plants. A strong program continued in conjunction with the government industry Canadian Carbonization Research Association in assessing the suitability of Canadian metallurgical coals both for use in the domestic steel industry and in export to Pacific Rim markets. The off-oil policy of the federal government had led CANMET to redirect some of its coal combustion programs towards advanced combustion processes (fluidized-bed combustion) for electricity generation, especially in support of demonstration programs in eastern Canada through the NEP Special Atlantic Initiatives Package, and in support of acid rain initiatives. CANMET maintained a central coordinating role in coal R&D activities in Canada and, internationally, was participating in International Energy Agency programs and other international groups. In oil and gas technology CANMET has traditionally limited the scope of its program to non-conventional sources - oil sands and heavy oils. The energy crisis of 1973 gave impetus to a long-standing R&D program to upgrade bitumens and heavy oil by hydrogen addition under pressure, to improve liquid yields above these obtained from the

carbon-subtracting coking processes, as used at the Syncrude and Suncor oil sands plants. The success of this work was leading to the commercialization of the CANMET technology at the 5,000 barrels a day level by Petro-Canada in its Montreal East refinery.

**Electricity
exports benefits**

In an address on October 13 to the Canadian Society of New York, the Minister of EMR reviewed a number of current bilateral energy interests and issues. In referring to Canada's electricity exports to the U.S., which totalled over \$1.1 billion in 1982, he noted that recent advances in electric power transmission technology were making it possible to export electrical energy beyond Canada's traditional market areas in the U.S. For that reason, Canada would like to accelerate the rate of its capacity development in order to meet the needs of its U.S. customers. In turn, for its commitment at the supply level, Canada asked its customers to provide purchase guarantees. The export of Canadian electricity to the U.S. would provide many benefits to both countries including a reduction in acid rain resulting from the burning of coal. Earlier in the year, a major study carried out by the Canadian Electrical Association in 1982 became available. Under the title of "Potential Benefits and Costs of Canadian Electricity Exports", it quantified costs and benefits of increased electricity exports and recommended a more vigorous electricity export policy. This study became an important reference on marketing, legal, regulatory and other aspects of the electricity exports issue.

**Motor Vehicle
Energy Committee
and fuel
consumption
standards**

The first meeting of the Government-Industry Motor Vehicle Energy Committee (GIMVEC) was held in October. GIMVEC drew its membership from automotive industry associations and federal government departments concerned with motor vehicle energy issues, and had been formed by EMR at the request of the North American based segment of the industry. Its chief purpose was to provide an opportunity for the exchange of information on energy issues and developments as they pertained to motor vehicles. Of particular interest to GIMVEC were the issues related to the voluntary Motor Vehicle Fuel Consumption Program. Under that Program, vehicle manufacturers had agreed to meet fuel consumption standards and to affix labels to vehicles which indicated their fuel consumption as determined by government-approved test methods. Bill C-107 "An Act respecting motor vehicle fuel consumption standards" had been debated in Parliament and received Royal Assent on July 7, 1982. Because of the automobile industry's willingness to proceed on a voluntary basis with the implementation of a fuel consumption standard, and company adherence to a satisfactory schedule in this respect, it was decided not to bring the Act into force.

**Hydro-Québec
curtails its
expansion plans
- national
electricity
plans also
scaled down**

In October, Hydro-Québec presented its 1983 Development Plan to the provincial government and the trends indicated for its future appeared to reflect changes and issues facing utilities elsewhere in Canada. In October 1982, Hydro-Québec forecast a 3.2 per cent annual electricity demand growth over the period 1981-1996. In October 1983, the estimate was lowered to 2.9 per cent,

both in contrast with an October 1981 forecast of 6.2 per cent. The 1981, 1982 and 1983 capital investment projections over ten years were \$55 billion, \$33 billion and \$18 billion, respectively. In late 1983, there were indications that Hydro-Québec would defer until after the year 2000 the in-service dates of the following planned additions to base load generation: La Grande Phase II - 2,192 MW, Grand Baleine - 2,986 MW, La Romaine - 1,708 MW, and Nottaway, Broadback & Rupert - 7,030 MW. Hydro-Québec's commercial strategy to sell its current surplus was based on active programs of increased electricity exports, of increased internal sales by accelerating oil substitution by electricity, and of additional use of electricity in industry for new production requirements. Interconnections with neighbouring provinces and the U.S. were to be increased in transmission capacity and, with these increases, Hydro-Québec was forecasting sales to Ontario, New Brunswick and the U.S. to reach 28 billion kWh in 1986 and 36.5 billion kWh in 1988 (the year of critical surplus), compared with 18 billion kWh in 1982. On a national scale, the Canadian Electrical Association, at the end of 1983, forecast that electrical utilities in Canada would spend \$91 billion on construction in the following 10 years, down 45 per cent from its previous estimate of \$164 billion. Canadian utilities were revising their longer-range capital spending forecasts to ensure that capacity was not over-built in future.

**Cape Breton
coal remains
uneconomic**

In November, the Minister of Industry, Trade and Commerce announced a thorough review of the economic situation of the Cape Breton Development Corporation (DEVCO) on being advised that it had lost \$46 million in 1982-83 and was forecasting an operating loss of \$63 million in 1983-84. A loss of \$11 million had been forecast for 1982-83. DEVCO had been established in 1967 to gradually phase down the costly Cape Breton coal industry and to help promote the economic diversification of Cape Breton. The introduction of viable alternative industries in the 1970s was not successful and, with rising oil prices in the mid-1970s, the objectives of DEVCO changed and it again became involved in coal mine development and expansion which continued to be uneconomic as it had throughout most of the previous 50 years.

**Forecast of
Middle East
oil supply
interruptions**

In November, the Canadian Petroleum Association Executive Director, in quoting a U.S. Department of Energy forecast of a 75 per cent chance of oil supply interruptions in the Middle East before 1990, expressed the view that Canada could be in big trouble if the disruptions triggered another shortage. He further noted that while Canada in 1983 was statistically self-sufficient in oil, it was only because the recession had reduced demand. He felt that Canadians should be using a period of non-crisis to discuss and resolve the energy problems that so drastically limit Canada's potential.

**No further
acquisitions
by Petro-Canada**

In November, the Chairman of Petro-Canada stated that the company was finished with major acquisitions and was entering a period of consolidation, productivity and

stability. He further noted that for Petro-Canada to become a viable policy instrument, it must have "expertise, people, financial resources and muscle". With completion of the acquisitions of BP Refining and Marketing Canada Limited and of Petrofina Canada Inc. in 1983, he was satisfied that Petro-Canada had a sound organization.

**Turkey's intent
to acquire a
CANDU reactor**

On November 3, Atomic Energy of Canada Limited (AECL) confirmed at a news conference that it had received a letter of intent from Turkey to purchase a CANDU nuclear reactor. Sale of a 600 MW reactor would be negotiated by AECL in cooperation with Korea Heavy Industries and Construction Co. which would share in the construction and financing of the proposed \$1-billion project. Seven companies had been competing to sell three reactors to Turkey and reports had indicated that General Electric of the U.S. and Kraftwerk Union of West Germany were other successful bidders. By the late 1980s, details of an agreement with Turkey for the purchase of a CANDU reactor remained to be settled.

**Western Grain
Transportation
Act removes \$2
per ton sales
price limit on
Dominion Coal
Blocks**

On November 14, Bill C-155, An Act to facilitate the transportation, shipping and handling of western grain and to amend certain Acts in consequence thereof -- the Western Grain Transportation Act -- was passed by the House of Commons, and shortly after by the Senate. The bill had been debated in Parliament over a number of months. Section 65 makes provision for amendment of the Crow's Nest Pass Act so that coal lands of Canada -- the Dominion Coal Blocks in B.C. -- could now be held, disposed of, or otherwise dealt with in any manner and on any conditions the Government of Canada deemed fit. This had the effect of removing the specification from the Crow's Nest Pass Act that coal must be sold at \$2 a ton or less. During the Parliamentary debate there was extensive reference to the question of ownership of the Dominion Coal Blocks in view of the B.C. government's ownership claims. This issue remained dormant in the mid-1980s as general coal marketing conditions discouraged any concerted effort to promote the development of this large coal resource.

**Forecast of the
role of
renewable energy**

In November, the organization Friends of the Earth Canada completed a study for the Government of Canada entitled "2025: Soft Energy Future for Canada" (306 pages). The study concluded that public policy and institutional barriers formed the main barriers to an energy self-sufficient future but that the "soft path" (the use of energy conservation to reduce energy service demands to levels that could be met with renewable, decentralized, ecologically benign sources) was both technically feasible and economically attractive. The study further concluded that, by the year 2025, Canadians could enjoy greater per capita wealth while consuming up to one-third less energy as a nation than in 1978, despite a larger population (up by 50 per cent) and Gross Domestic Product (up 200 per cent real). During this period, the use of renewable sources of energy would rise from 16 per cent of energy used to about 80 per cent. The contribution of refined petroleum products and natural gas would decline significantly over the 50 year period. The study prepared

for the federal government did not express views on the likelihood or desirability of the "soft path" but, rather, analyzed the feasibility of such an energy path. Subsequently, the authors published a book, "Life After Oil", which argued that the soft path was desirable and suggested what actions would be necessary on the part of the government and the general public to place Canada on such a path. The forecasts in the study and the book included a 12 to 34 per cent decline in national energy consumption in the period 1978-2025; 95 per cent of transportation energy being supplied by biomass-based fuels; 95 per cent of electricity being hydro power; and renewable energy accounting for 77-82 per cent of all energy by the year 2025. Earlier in the year, in April, the Worldwatch Institute forecast, in a book entitled "Renewable Energy: the Power to Choose," that the energy mix in the year 2000 in the world would be in the proportion of oil -- 26%; renewable energy -- 26%; coal -- 24%, natural gas -- 18%; and nuclear power -- 5%.

**Pre-build court
challenge not
upheld**

On November 17, the B.C. Supreme Court ruled that Parliament effectively delegated authority to make the amendments contained in the order authorizing construction of the pre-build section in Canada of the Alaska Highway natural gas pipeline. In his lawsuit before the Court, the Member of Parliament for Vancouver-Kingsway had claimed that three federal Cabinet Orders-in-Council of July 17, 1980, which had authorized the construction, were invalid. He, accordingly, lost his pre-build challenge at the B.C. Supreme Court level.

**CPA/IPAC brief
to Royal
Commission
on the Economic
Union and
Development
Prospects for
Canada**

In a combined brief presented to the Royal Commission on the Economic Union and Development Prospects for Canada in November, the Canadian Petroleum Association (CPA) and the Independent Petroleum Association of Canada (IPAC) recommended maximum development of Canada's oil and gas reserves by the private sector and a lessening of government control in favour of market forces. Consistent policy direction from government was important because investments could take decades to pay off. Government tax and royalty structure should reward efficient companies by being linked to profit and investment returns instead of straight production, a criticism of such taxes as the Petroleum and Gas Revenue Tax. The fiscal regime should be sensitive to the various risks and costs of development. On many occasions in the past, the Canadian Petroleum Association, in particular, had called for a fiscal regime that would be supportive of the oil and gas industry in a climate of unrestricted markets. Other oil company briefs presented to the Commission at this time emphasized a non-interventionist approach on the part of government, being particularly critical of a number of measures of the National Energy Program.

**Dome Petroleum's
debt
rescheduling
plan**

During November, Dome Petroleum prepared a debt rescheduling plan, issued on December 1 to representatives of its lenders and the Canadian government. Under the plan, Dome intended to sell additional non-core assets thereby reducing its debt to about \$5.7 billion; improve its capital structure through the issuance of \$700 million

of equity-related securities; and continue to pay interest on all loans and repay principal in full in accordance with a fixed amortization schedule. The company's lenders were asked to extend the repayment schedules of their loans; to provide options for fixing interest rates; and to continue to make available existing operating lines of credit as well as providing a new \$200 million (U.S.) unsecured standby credit. The federal government and four Canadian banks were asked to continue to make available to the Company the support, if required, as provided for in an Agreement in Principle in September 1982, until the new plan could be put in effect. The rescheduling plan was being proposed as an alternative to the financial assistance that had been offered by the federal government and the four Canadian banks. The plan had the objective of restoring the liquidity of the Company and repaying its outstanding indebtedness of \$6.2 billion over a 10 1/2 to 12 year period. It would drop the billion-dollar convertible debenture proposal of the September 1982 Agreement in Principle that would have given the federal government and the four banks a large ownership in Dome. By the end of December, the 29 foreign and Canadian banks were resisting Dome's rescheduling plan but believed a refinancing package could be worked out.

**Dome's Western
LNG Project
delayed**

In November, Dome Petroleum decided to delay by a year its proposal to ship liquified natural gas to Japan but still hoped to commence shipments in 1987. Among other problems, it was experiencing delays in reaching agreements on the price of natural gas supplies from Alberta and B.C. producers. In March, the Japanese National Oil Corporation had refused to act as a guarantor for a \$2.4 billion loan to Dome to finance the liquified natural gas (LNG) plant at Grassy Point on the north B.C. coast to supply Japanese utilities. In May, the National Energy Board postponed until October a public hearing on the \$4 billion project at the company's request as it needed more time to file details on financing and pricing agreements with gas producers. In October, the B.C. government indicated its support of the project in principle but by November the Company was unable to complete financial and other arrangements for the pipeline, liquefaction and shipping facilities of the project.

**Petrochemical
problems
continue**

By November, it was apparent that there had been some improvement in 1983 in the prospects for some sectors of the Canadian petrochemical industry. Exports had increased and there were steady production gains for most of the key petrochemical commodities. For western Canada, the competitiveness of its ethane-based industry improved significantly as U.S. ethane prices, which had been severely depressed in 1982, remained 20-30 per cent above Alberta prices in 1983. Although the eastern Canada industry was helped somewhat by improved demand for its products, the two major oil-based olefins producers -- Quebec's Pétromont and Ontario's Petrosar -- continued to be unprofitable. In spite of federal and provincial government loans and loan guarantees, the future viability of both of these primary petrochemical producers remained doubtful without substantial restructuring and further

government assistance to utilize a broader range of feedstock. A Petrochemical Industry Task Force was established in June to address these various problems and was scheduled to report early in 1984 with also recommendations for a long-term policy. Several small, uneconomic plants were shut down in 1983 while two new plants in Sarnia, Ontario and two in Alberta were started up which would exert additional pressure on more of the older plants to close in a climate of highly competitive markets.

**Auditor
General's report
relative to the
NEP**

In his report to Parliament in December, the Auditor General included the following comments for the fiscal year March 31, 1983 relative to the National Energy Program (NEP): 1) "In summary, the implementation of the National Energy Program was a large and difficult task done under rapidly changing circumstances and very strong time pressures". 2) "We believe that the programs have been well implemented, considering the circumstances. Further improvement in procedures is needed and much is under way". 3) "There are about 40 such programs (conservation, renewable energy and oil substitution) that were either introduced or expanded by the National Energy Program ... In our view, the challenge presented by the NEP to public servants at all levels was great. Overall, the challenge of implementation is being met." 4) "PIA is well administered overall, but some key management functions are not yet adequately performed". 5) "We examined the Petroleum Compensation Charge ... Overall, the (Oil Pricing and Compensation Programs) Branch manages its programs well. It has ensured that payments and revenues have been properly administered in the fiscal year ending 31 March 1983". In commenting further with specific reference to the Petroleum Incentives Program (PIP), the Auditor General warned that the program was open-ended because the total of grants to industry were driven by the pace of exploration activity.

**Energy
investment
forecast to
the year 2000**

In November, a report by Merrill Lynch Canada Inc. forecast that the oil and gas industry would invest more than \$250 billion in Canada in the period 1983-2000 to develop the country's oil and gas reserves. Total energy-related investments would reach \$556 billion when petroleum product processing and manufacturing costs, coal mining, electrical utilities and pipeline investments were included. By comparison, investments in oil and gas exploration and development in Canada totalled \$54 billion between 1947 and 1983.

**Canada-U.S.
natural gas
relations in
1983**

The following extracts from a December 22, 1983 Report to the Congress on Natural Gas Imports sums up the essence of U.S.-Canada natural gas relations in 1983. The report, which also referred to natural gas trade with Mexico and Algeria, emphasized that import contracts must be responsive to changes in the American markets served so that imported natural gas is supplied to American consumers at competitive prices throughout the term of the contract.

"Since over 80% of our gas imports (783 bcf in 1982) come from Canada, U.S./Canadian gas trade is by far the most significant component of our international gas trade.

Beginning in 1983, we have had a series of meetings with Canada under the aegis of the Energy Consultative Mechanism (ECM) to discuss bilateral energy trade problems, especially those related to our natural gas trade. There have also been meetings between senior U.S. and Canadian officials outside the framework of the ECM, including a meeting between Secretary of Energy Hodel and Canadian Minister of Energy Chretien. On the U.S. side, we have emphasized that this gas trade should be established on a market-sensitive basis. We believe important progress has been made toward achieving this objective. During 1983, Canada made substantial adjustments in the form of both price and volume relief for U.S. importers and American consumers to maintain, or prevent further erosion in, Canada's share of American gas markets. These adjustments have included a 11% reduction in Canada's base export price to \$4.40 per MMBtu and the institution of a Volume-Related Incentive Price (VRIP) scheme for gas exports to the U.S., which lowers the price to \$3.40 per MMBtu for purchases exceeding 50% of contract volumes. American buyers and Canadian sellers of gas have also been negotiating short-term volumetric relief settlements."

"Further progress was achieved at the September 28 U.S./Canada Energy Consultative Mechanism meeting in Ottawa. At that meeting, the U.S. formally proposed to Canada that our two countries establish a new framework, or set of principles, designed to put our bilateral gas trade on a market-sensitive basis. We pointed out that because of regional differences in U.S. gas markets, we foresee Canadian gas exports based on buyer-seller negotiations leading to varied gas prices at the U.S./Canada border. Both sides also agreed that Canadian gas would have to be competitive in the long-term in U.S. markets. In meeting this objective Canada indicated that it may have to make further adjustments. On November 1, Canada made an adjustment by broadening its VRIP export scheme to allow U.S. purchasers to take advantage of the lower VRIP price of \$3.40 per MMBtu this winter. We also understand that discussions are taking place in Canada within the Federal Government, within the Provincial Governments of Alberta and British Columbia, and between private industry and the Federal and Provincial Governments on the possibility of further export marketing adjustments over the coming year."

The report to Congress concluded that these developments had moved the U.S. closer to a market-related trade in gas imports, although clearly more remained to be done. However, the adjustments had resulted in savings for Americans of over \$1 billion in 1983 and would result in savings in 1984 of over \$1.5 billion. Since over 80 per cent of U.S. gas imports came from Canada, these savings resulted largely from reductions in Canadian gas export prices.

Speech from
the Throne

In the December 7 Speech from the Throne, the following reference was made to energy:

"Energy policy must continue to command the attention of Canadians. The framework for achieving our national goals of energy

self-sufficiency and increased Canadian ownership was put in place with the passage of the National Energy Program. It now forms an integral part of the long-term planning of energy companies, large and small. Petroleum Incentive Payments, in particular, encourage both new sources of supply and enhanced Canadian ownership. The Government will continue its strong commitment to the NEP in order to ensure that our goals are reached. Legislation will also be introduced to confirm the Canada-Nova Scotia Energy Agreement -- a stimulus to new large-scale development off Canada's east coast."

**OPEC \$29
oil price**

In a communique issued on December 9, OPEC oil ministers agreed to hold the line on their \$US 29.00-a-barrel price and 17.5-million barrel-a-day production ceiling, which they had adopted in March 1983. There was a determination to tighten internal discipline to force dissident members to honour the price and production freeze despite weak world demand for oil.

**Proposed Alaska
LNG shipments
to Japan in
place of Alaska
Highway gas
pipeline**

In December, there was mounting interest in the U.S. in a proposal to ship Alaskan gas to Japan, as LNG, rather than to the lower 48 states via the proposed, but long-delayed, Alaska Highway Natural Gas Transportation System (ANGTS) for which the pre-built sections in Canada had already been completed. A dispute had arisen as to whether the U.S. was legally or morally obligated to transport Alaska natural gas through the ANGTS via the pre-built sections to the lower states. Canada strongly maintained that such an obligation existed through a series of U.S. commitments implicit in laws, resolutions, agreements and correspondence on the multi-billion dollar pipeline project that had been delayed repeatedly due to a lack of financial backing. However, Yukon Pacific Corp. the company planning to ship Alaska gas as LNG to Japan, denied there was any obligation to move the gas south, and had asked Congress for an explicit statement that would squash any such obligation.

**Arctic Pilot
and Polar
Gas Projects
delayed**

In December, Petro-Canada, Dome Petroleum, Melville Shipping Ltd, and NOVA, an Alberta Corporation - participants in the Arctic Pilot Project (APP) - asked the National Energy Board to withhold hearings for 18 months on their proposal to move natural gas as LNG from the Arctic Islands pending development of possible markets in Europe. The hearings had been adjourned by the NEB until the market issue was resolved. The APP hearings before the NEB had commenced on February 2, 1982 and were adjourned on August 31, 1982. On June 8, 1982 NEB directed the APP to submit views by December on the future status of the proceedings and the sponsors submitted it would be in the public interest to maintain the status of the hearings. The Polar Gas Consortium (Tenneco Inc., Panarctic Oils Limited, Ontario Energy Corporation and Petro-Canada) announced in December the intention to apply to the NEB and the Department of Indian and Northern Affairs in 1984 to

construct a natural gas pipeline through the Mackenzie Valley from the Beaufort Sea-Mackenzie Delta area to Edmonton over a 2122 km route. Cost of the project was estimated at \$6.1 billion (\$1982). Initially, in December 1977, Polar Gas had applied to the NEB to build a gas pipeline from the Arctic Islands southward along the west side of Hudson Bay to join the TransCanada system at Longlac in northern Ontario.

Changing NORP
differentials;
NORP for
infill wells

On December 22, announcement was made of changes in the New Oil Reference Price (NORP) effective January 1, 1984. A revised method of calculating NORP prices was to be implemented based on results of an extensive review of the method for determining the prices of different qualities of NORP Oil. The review had followed from a commitment made on June 30 when the Amendment to the Canada/Alberta Memorandum on Energy Pricing and Taxation was announced. The objective of this change was to achieve conformity between Canada's new oil prices and the prices of comparable foreign crudes. New oil prices in any month would now be based on prices of equivalent quality foreign crudes during the previous month as compared at Montreal. The change eliminated two problems associated with NORP. By moving away from the use of an average price, it ensured that NORP prices would be more in line with foreign prices. The revised method also did away with the four-to-six month delay involved before foreign prices could affect NORP prices received by domestic producers. The changes announced in December also made provision for the NORP to be extended to oil produced from infill wells drilled within pool boundaries on reduced spacing where it could be demonstrated there would be incremental production. This provision was designed to enhance the recovery of oil from reserves that would not otherwise be produced without the world price.

Canada Lands
exploration in
1983 at a
high level

Exploration in the Canada Lands was at a comparatively high level in 1983, based on the record to the end of December. A total of 33 exploratory wells were completed: 17 offshore the Atlantic coast, 3 in the Beaufort Sea, 4 on the Arctic Islands and 4 offshore in that region, 2 in the MacKenzie Delta region, and 3 in the MacKenzie Valley south of the Delta. A total of five discoveries were made: 3 gas discoveries off the Atlantic coast, and 1 oil and gas discovery in the Beaufort Sea and one in the offshore from the Arctic Islands. As in 1982, none of the discoveries appeared to have added significant amounts to Canada's inventory of discovered oil and gas resources.

THE YEAR 1984Revised NORP
System

Effective January 1, a revised system for the New Oil Reference Price (NORP) came into effect. Since the inception of the NORP program in January 1982, the international price had served as the NORP because of the flat world crude prices in 1982 and falling prices in 1983 and because, in terms of the September 1981 Memorandum of Agreement between the governments of Canada and Alberta, NORP was never to exceed the international price. In the NORP program, in each month the average price of imports into Montreal in the fourth, fifth and sixth previous months was the basis for all NORP prices. Prices for crudes whose quality was other than the average import quality were determined using NORP quality differentials which were applied to the average price to yield an entire set of prices, one for each quality level. Because the premium or discount, implied for a crude of 38° API versus 37° API was exactly the same as for a crude of 24° API versus 23° API, discrepancies arose between NORP prices and international prices due to the fact that premiums, or discounts, in the international market did not follow such a pattern. The fact that NORP prices were based on Montreal imports that left their country of origin four to six months earlier introduced a severe time lag problem. Furthermore, domestic NORP production was concentrated where NORP prices exceeded international prices - at the heavy and very light ends. Consequently, the consumer was compensating the producer by an amount that could have exceeded \$175 million in 1984 if left unchanged. After extensive consultation with industry and the provinces, the federal government decided to abandon a formula approach and to proceed on the basis of setting NORP prices of particular qualities of crude in any month directly equal to the actual prices of foreign crudes of equivalent qualities in the previous month. The revised NORP price system provided for the effective elimination of the time lag; greater comparability between NORP and foreign crudes; a condition in which NORP prices would change as foreign crude prices (or exchange rates and transportation costs) changed, not when extraneous factors fluctuated; and a regime in which NORP prices would be based on 52 crudes from 17 different countries compared to as few as three crudes from two countries under the former system.

Alberta Energy
Resources
Conservation
Board 25-year
forecast - oil
sands to offset
deficit

In January, the Alberta Energy Resources Conservation Board forecast that declines in the productive capacity of crude oil from conventional sources in Alberta during the next 25 years would be more than offset by a major increase in synthetic oil production. Productive capacity from all sources would drop to 1.08 million barrels a day by 1990 from 1.3 million b/d in 1983, despite new discoveries and tertiary recovery projects. By the year 2007, productive capacity would be 1.35 million b/d, assuming that synthetic oil production from scaled-down oil sands plants in the construction or planning stages in the early 1980s, increased to 875,000 b/d from the 1983 level of 157,000 b/d.

Oil shortage by
1990 unless
tax provisions
changed

In January, Gulf Canada Ltd. forecast that unless new petroleum sources were found, Canada could be back in a critical supply situation by 1990, with a daily shortfall of some 200,000 to 400,000 barrels. This prediction was made in the context of the company's contention that the federal government should change both its method of taxing oil companies and of making grants available to companies exploring for oil in frontier regions in order to encourage new oil development.

Oil self-
sufficiency in
1983 - first
since 1974

The record available in January 1984 showed that exports of Canadian crude oil in 1983 exceeded imports for the first time since 1974. The oil trade deficit in 1982 of \$2.26 billion turned into a surplus in 1983 of \$183 million as a result of increased exports.

Nuclear capacity
forecast to
year 2000

In January, records available from the International Atomic Energy Agency (IAEA) showed that at year-end 1983, there were 209 nuclear reactors with a combined capacity of 194 GWe under construction throughout the world to add to the output of the existing 317 reactors which had a combined capacity of 191 GWe in 25 countries. The IAEA forecast that the total world installed nuclear capacity would amount to 275 GWe by 1985 and would grow to between 370 and 400 GWe by 1990, and to between 580 and 850 GWe by the year 2000. In Canada, there were 18 nuclear power reactors licenced to operate at the end of 1984, with a total capacity of 10.7 GWe.

Canadian Ownership
Special Charge
to be used for
other purposes

In January, the federal government indicated its intention of using revenues from the Canadian Ownership Special Charge (COSC) for other purposes now that its initial purpose of increasing Canadian ownership within the petroleum industry through the purchase of Petrofina Canada Ltd. had been accomplished. The legitimacy of this tax was debated several times in Parliament in the early months of 1984 in the context of the gasoline pricing issues.

Pickering nuclear
reactor leaks

In January, two tubes at Ontario Hydro's Pickering 1 station were found to have blisters similar to those discovered in August 1983 at Pickering 2. The blisters were in an area that had been sagging against the calandria tube for some time. The reactor was shut down and tubes were removed for examination. It was decided to retube Pickering Units 1 and 2, which had been in service for more than a decade, rather than wait till the 1990s as had been originally planned. The alloy chosen as a replacement was ZR-2.5% Nb, the one used in all CANDU reactors after Pickering 1 and 2. The cost estimate for the retubing was \$700 million. There were three contributing factors to the tube malfunction: unexpectedly high corrosion of the inside of the Zircaloy pressure tube in contact with the heavy water coolant and resultant high uptake of released deuterium by the underlying metal late in tube life; precipitation of ZR deuteride platelets within the alloy leading to loss in defect resistance; and displacement of one of "the garter" springs separating the hot pressure tube from the surrounding calandria tube so that the former was able to sag in contact with the latter after several years of operation, resulting in cold spots on the pressure tube with deuterium diffusing to the lower temperature area

in the zirconium allow and precipitating as brittle zirconium blisters. Research had indicated that these three factors would be much less important with the use of the new Zr-Nb alloy pressure tube. The replacement work was scheduled to be completed by October 1986.

Oil and gas
resource
appraisal by
GSC

In January, the Geological Survey of Canada (GSC) released its latest estimates of Canada's petroleum resources. For the country as a whole, conventional oil resources, at a 50 per cent probability, were estimated at 5,893 million cubic metres, compared to a 1976 estimate of 4,770 m³. These estimates included reserves and potential resources but did not include the oil sands of western Canada. Natural gas resources were estimated at 12,522 billion cubic metres. Four regions account for most of the country's oil and gas resources:

| | <u>Oil</u> (million m ³) | <u>Natural Gas</u> (billion m ³) |
|----------------------------------|---|---|
| Western Canada Sedimentary Basin | 1,347 | 4,615 |
| Eastern Offshore Region | 2,102 | 2,669 |
| Beaufort Sea - Mackenzie Delta | 1,464 | 2,151 |
| Arctic Islands Region | 762 | 2,618 |
| Cordilleran Basin | 50 | 270 |
| Eastern Canada | <u>168</u> | <u>199</u> |
| | 5,893 | 12,522 |

The reserves and discovered oil resources constituted 20 per cent of the total discovered and potential oil resource, and the reserves and discovered gas resources, 24 per cent of the total gas resource. While the potential resource is large, it remains potential until it is discovered and can be marketed under existing economic conditions. The remaining established reserves of synthetic crude oil in the oil sands were considered to be in the order of 3,860 million cubic metres, and the potential from enhanced oil recovery in Western Canada, 500 million m³, both additional to the estimates in the above tabulation and both subject to considerable uncertainty as to costs and technology.

Consolidation of
conservation
programs --
ENERDEMO, NEAP

In January, two conservation and renewable energy programs operating under agreements with the provinces were replaced by more comprehensive federal programs. The Conservation and Renewable Energy Demonstration Agreements (CREDAs) were replaced by ENERDEMO-Canada, a new five-year national program encompassing activities such as the Remote Community Demonstration Program (RCDP) and the existing ENERDEMO program in Quebec, and having an \$80-million budget. The National Energy Audit Program (NEAP), providing on-site energy audits and consulting advice grants to business firms and institutions was replaced by a new energy audit program, providing energy information and advice, but more fully integrated with other related federal initiatives. NEAP was an extension of the National Energy Bus Program implemented in 1978. There was need of

more uniform delivery of these several programs across Canada and a better integration of the services on a national basis.

Key Lake
uranium mine
contaminated
water spill

In January, a spill of about 60 million litres of low-level radioactive water from a reservoir at the Key Lake uranium mine in northern Saskatchewan took place. The Key Lake operation officially opened in June and, upon achieving its annual design output level, would become the world's largest uranium production centre. The spill was contained by dykes set up to keep any contaminated waters out of nearby lakes. However, considerable attention was given to the matter in Parliament with questions as to the cause of the accident, clean-up procedures, contingency planning, and specifics regarding federal licensing of uranium mines. There was also debate over the matter of federal-provincial jurisdiction and whether there was evidence that federal regulations, under the Atomic Energy Control Act, had been violated.

Romanian CANDU
contract

In January, two Canadian engineering contractors, selected to supply \$70 million in components for two CANDU reactors for Romania, signed counter-trade agreements. Romania had specified that any Canadian companies winning contracts would have to take Romanian goods of equal value and sell them on the domestic market. It rejected a proposal that a Japanese trading company handle the goods on behalf of Canadian industry on the world market. In August 1983, Atomic Energy of Canada Limited had announced that manufacturing orders would commence on the two-unit CANDU station in Romania.

Canada/U.S.
cooperation on
oil sands
research

At a meeting held in Ottawa on January 26, officials of U.S. and Canada agencies agreed to extend by five years the term of a Memorandum of Understanding for Cooperation in R&D on Oil Sands and Heavy Oil that had been initially signed in 1979. The U.S. had been participating through its Department of Energy, and Canada through EMR (CANMET), the Alberta Oil Sands Research Authority, and the Saskatchewan Department of Energy and Mines. During the first five years of the program, emphasis had been given to resource characteristics and analysis of oil sands and heavy oils; steam injection enhancement by additives; technical information exchange; remote sensing of underground heat and fluid movements; and demonstration of U.S. technology for down-hole steam generation.

Canadian
Environmental
Assessment
Research Council

On January 31, the federal Minister of the Environment announced the creation of the Canadian Environmental Assessment Research Council (CEARC) to review and comment on the needs and adequacy of research related to environmental assessment and its contribution to planning and development in Canada. The Council was to report to the Executive Chairman of the Federal Environmental Assessment Review Office (FEARO) and have twelve members appointed for a rotating two year term. Interest in improving the scientific and technical bases for environmental review, especially within the context of the Environmental Assessment Review Process (EARP), was generated by the publication in 1983 of a report entitled "An Ecological Framework for Environmental Impact

Assessment in Canada". The creation of the CEARC was in fact, the implementation of one of the recommendations contained in that report. This initiative was also a partial response to criticism of EARP reviews over the years regarding the lack of scientific quality and systematic approach in dealing with the environmental aspects of federal initiatives, including many energy-related activities - particularly in the frontier.

Polar Continental Shelf Project

In January, assessments of the Polar Continental Shelf Project (PCSP) 1983 field season were being finalized preparatory to the 1984 season. More than 170 scientific parties were supported by the PCSP in the Arctic Islands and the mainland coastal area in 1983, the greatest number of parties in the field in one season since the establishment of the PCSP in 1958. The largest project in 1983 was the Canadian Expedition to Survey the Alpha Ridge (CESAR), with its camp located on the icepack in the Arctic Ocean as a follow up to LOREX (Lomonosov Ridge Experiment) of 1979. Some 40 scientists and technicians spent almost two months on the ice, representative of many scientific disciplines, but with emphasis on geological and geophysical research into the origin of the Alpha Ridge. Plans were also being made early in 1984 to establish a Canadian scientific station on an ice island in the Arctic Ocean. However, these plans had to be set aside in April until 1985 because of weather-related delays. All of the PCSP and related field studies have a relevance to oil and gas and other resource development plans and activities in the Arctic. Interest in this research was steadily increasing in the 1980s, with 200 scientific parties planned for 1984.

Natural gas prices maintained at 65 per cent of the oil price

On February 1, several changes in the component prices comprising the wholesale price of Alberta natural gas sold in trans-provincial trade came into effect. The changes offset each other, and gas prices remained stable. Since the September 1, 1981 Canada/Alberta agreement, amended in June 1983, the wholesale price of gas had been maintained at a price level of 65 per cent of the price of crude oil at the refinery gate for gas sold in provinces east of Alberta, with the price ratio being set in the most eastern domestic market area - the Eastern Zone, stretching from southwestern Ontario to Quebec City, there being an even more attractive gas/oil price relationship in the more westerly markets. The 65 per cent ratio had been maintained by the federal government by adjustment of the Natural Gas and Gas Liquids Tax (NGGLT). In anticipation of the tax reaching zero, the 1983 agreement provided for continued maintenance of the price relationship through adjustment of the price of gas at the Alberta/Saskatchewan border and the tax change of February 1, 1984 reflected the commitment of the federal and Alberta governments to the 65 per cent ratio. The changes that took place included a drop in the price of gas in the Eastern Zone from \$3.861 to \$3.858 per gigajoule, a rise in the Alberta border price by \$0.156 per gigajoule to \$2.79, and a decline in the NGGLT from 15 cents per gigajoule to zero. The Alberta border price increase was less than the scheduled \$0.233 set out in September 1981 but increased Alberta producers' revenues by \$160 million per year.

Canada -
Saskatchewan
Heavy Oil
R, D & D
Program

On February 3, the federal and Saskatchewan governments announced a five-year agreement directed towards the development and use of Saskatchewan's fossil-fuel resources. The Heavy Oil/Fossil Fuels Research, Development and Demonstration Program was to be funded equally by the two governments, with each contributing \$15 million over the period 1984-1988, with an option to extend it beyond March 1988. Emphasis would be given to research, development and demonstration (RD&D) of new technologies to promote the recovery and utilization of Saskatchewan's fossil-fuel resources, with particular attention to heavy oil. The Program was to be administered by the Saskatchewan government under the direction of a federal-provincial management committee composed of two representatives from the Saskatchewan Department of Energy and Mines and two from the federal Department of Energy, Mines and Resources. The program would focus on an R&D laboratory program to support applied research and development projects in various research agencies, and a development program to support field demonstrations, pilot projects, and other projects involving the industry. The Heavy Oil/Fossil Fuels R, D and D Program was based on the Canada/Saskatchewan agreement of October, 1981 covering a wide range of provisions, including oil pricing, a plan for heavy crude oil facilities, and the adjustment of Saskatchewan's royalty and tax regimes.

NewGrade
Inc. - federal/
Sask. management
agreement for a
heavy oil
upgrading plant

On February 3, the federal and Saskatchewan governments announced arrangements for the management of a Saskatchewan heavy oil upgrading plant to be owned and operated by NewGrade Energy Inc., a joint creation of the Government of Canada, the Government of Saskatchewan and the Consumers' Cooperative Refineries Limited (CCRL), a wholly-owned subsidiary of Federated Co-operatives Limited (FCL). The proposed upgrader would require an investment of up to \$600 million and was to be linked to CCRL's Regina refinery. Under terms of the agreement, as first announced in August 1983, the federal government would fund 40 per cent of the cost of Phase One of the project up to a maximum of \$6 million, and would provide loan guarantees for up to 35 per cent of the cost of the upgrader, with Saskatchewan providing similar loan guarantees and, in addition, taking an equity position. A decision to proceed with the upgrader would depend on results of feasibility studies undertaken in Phase One.

Federal budget
suspends IORT
for third time

In his February 15 budget, the Minister of Finance announced suspension of the Incremental Oil Revenue Tax (IORT) for the third time, at a total estimated cost to the federal treasury of \$195 million. The suspension was designed to encourage oil companies who were high cashflow reinvestors. The tax was suspended until June 1, 1985. It was to apply to oil discovered prior to 1981, and be payable at a rate of 50 per cent of revenues from oil prices exceeding those scheduled under the NEP after allowing a deduction of federal levies. The Energy Update of May 1982 had suspended the IORT from June 1, 1982 to May 31, 1983, and the April 19, 1983 Budget had provided for a further suspension to May 31, 1984.

Elk Point oil
sands project
follows Cold
Lake and Wolf
Lake in Alberta

On February 27, federal-Alberta agreement was reached with Amoco Canada Petroleum Company Ltd. on fiscal and royalty terms for the company's proposed oil sands recovery project at Elk Point, 165 km east of Edmonton. Alberta was to provide for reduced royalty payments until capital costs had been recovered by Amoco, and the federal government was to provide earned depletion allowance and relief from the Petroleum and Gas Revenue Tax (PGRT) as incorporated in the April 1983 budget, and the New Oil Reference Price, essentially the world price, for Elk Point oil. It was expected that the project, along with the Wolf Lake and Cold Lake projects begun in 1983, would help stimulate energy resource development in Alberta. After the first phase of the Elk Point project was completed, at an estimated cost of \$50 million, further work would depend on technical and economic assessments which, if favourable, could lead to expenditures of some \$1.8 billion and the drilling of more than 1000 wells providing for peak production of 4200 cubic metres (26,000 barrels) per day by 1995.

Petrochemical
Task Force
Report and
government
response

On February 6, the Petrochemical Industry Task Force submitted its report to the federal government after seven months of study and appraisal as to the future of the industry. The intention to establish the Task Force had been announced in March 1983 at the time an offer of \$50 million in loans and loan guarantees was made by the federal, Québec and Ontario governments to eastern oil-based petrochemical producers (Pétromont in Montreal and Petrosar in Sarnia). The Task Force contended that energy pricing policy did not allow Canadian oil and gas prices to respond to the fall in world prices thus making much of the industry uncompetitive during the recessionary period of the early 1980s. Among the Task Force's 15 recommendation was one calling for reductions in the price of industrial gas feedstocks of 15 per cent to save the industry some \$150 million a year. The gas price reduction proposal was not well received in Alberta. The Task Force had attempted to design proposals that would allow both the oil-based and the gas-based petrochemical industries to return to profitability and to resume their growth. The federal government released its response to the Task Force report in June and concurred in the conclusion that, since feedstocks represented up to 70 per cent of production costs, they must be recognized as the critical element in determining the industry's competitive position. It also appeared that further growth in the industry would be gas-based because of Canada's strong gas supply position. The oil-based industry in eastern Canada expressed disappointment with the federal response to the Task Force report. There were calls for a reduction in taxes in both the oil- and gas-based sectors of the industry, and the government was blamed for the proposed closure of the Pétromont plant because it had declined to take a stand on incentive pricing for oil and gas in the manner suggested by the Task Force. In September, the federal and Quebec governments made an offer of \$30 million to Pétromont and Union Carbide to offset expected operating losses over the following six months, with the two governments to share equally in this support program.

Further initiatives remained pending at the end of the year awaiting the outcome of federal/provincial oil and gas pricing discussions.

Super Energy-Efficient Homes Program - extended 7 years

In February, the Super Energy-Efficient Home Program (SEE) was extended for a further seven years with a new budget of \$50 million. The federal government believed that additional work was needed to refine and transfer the cost-effective energy-saving construction techniques for R-2000 standards to the entire building industry. In addition to the 300 builders who had received subsidies for building R-2000 homes, another 120 builders were trained in the design, construction and marketing of energy-efficient housing. The R-2000 homes were designed to reduce space-heating costs by 60-80 per cent and hot water and appliance energy costs by up to 50 per cent.

Japan withdraws from Dome's Beaufort Sea program

On February 21, the Japanese government announced it was withdrawing all official backing of Dome Petroleum's Beaufort Sea project because of its doubts of the possibilities of discovering commercial sources of oil. In response, Dome reported a \$400 million loan had been made available by the Arctic Petroleum Corporation of Japan (APC) in 1981 and this had been fully spent prior to 1983 in accordance with the agreement. No other Japanese funds had since been involved in Beaufort Sea exploration which in Dome's case was being funded by farm-out arrangements with third parties. After Japan's announced withdrawal, there were calls in Parliament for the federal government to withhold PIP funding in the Beaufort Sea region until there had been a clarification of the Japanese claims - that there was no oil in the region.

Medicine Hat Court challenge re. PGRT and NGGLT

On February 16, the Court of Queens, Bench of Alberta handed down a final judgement concerning a case in which the city of Medicine Hat, Alberta, had sought a declaratory judgement on the basis that the Natural Gas and Gas Liquids Tax (NGGLT) could not be levied on the city in its capacity as a distributor of natural gas because the tax was ultra vires the federal government insofar as it applied to the city. The Court ruled that the NGGLT and the Petroleum and Gas Revenue Tax (PGRT) were not ultra vires in their application to Medicine Hat. Medicine Hat's natural gas and electrical generation operations were found to fall under the category of municipal activities conducted at its own discretion and not as an agent of the provincial government and, therefore, the city was not immune from federal taxation. The taxes were not found to impair the financial integrity of the city, nor was the federal legislation found to have weakened Alberta's ability to legislate with respect to municipal institutions.

Husky oil upgrader on hold

In February, Husky Oil officials met with federal and Alberta officials concerning fiscal and royalty terms for the company's proposed heavy oil upgrader plant for the Lloydminster area but failed to reach an agreement. By mid-1987, the company was still negotiating government support for its proposed 50,000 barrel-a-day upgrader.

**Northern Oil
and Gas Action
Program (NOGAP)**

On February 22, the Minister of Indian and Northern Affairs announced a seven-year, \$130 million planning and research program as the cornerstone of the federal government's northern hydrocarbon development strategy. The Northern Oil and Gas Action Program (NOGAP) was designed to provide the knowledge necessary to respond to various proposals concerning oil and gas resource development in the north. Proposed activities for NOGAP were based on the assumption that oil would be transported either by a small diameter pipeline up the Mackenzie Valley or by tanker through the Northwest Passage. All government departments having responsibilities relative to northern Canada would be participants in NOGAP, with the program's overall management residing in the Department of Indian and Northern Affairs.

**U.S. Gas Import
Guidelines
directed against
Canadian gas**

On February 16, a U.S. government policy was announced which included guidelines emphasizing three main considerations in determining whether a proposed natural gas import proposal met the public interest test of Section 3 of the Natural Gas Act: the competitiveness of the import, the need for the imported gas, and the security of the imported supply. Importers were required to report to U.S. Economic Regulatory Authority (ERA) by April 16 concerning the conditions of their gas import contracts with Canadian suppliers in relation to these guidelines and the majority responded that their contracts did not conform to the new guidelines with respect to market responsive pricing provisions. A central tenet of the new U.S. policy was that the market, not the government, should determine the price and other contract terms for imported gas. In commenting on this policy, the Canadian Minister of State, Finance, in an address in New York in May, observed that Canada was already committed to a long-term pricing relationship that balanced the needs of producers and consumers but he expressed the hope that the U.S. Administration would, in the short term, show the same kind of flexibility in administering the guidelines that Canada had demonstrated over the previous year in its natural gas export pricing. Through May and June, U.S. importers continued to report to the ERA that there was room for making the contracts with Canadian gas suppliers more market sensitive, and Canadian exporters were experiencing difficulties with a U.S. Federal Energy Regulatory Commission rule-making which was adversely affecting many gas contracts.

**Dome's debt
rescheduling
problems**

In February, Dome Petroleum was continuing negotiations with its lenders following its failure to obtain backers by January 31 for its refinancing proposal as announced in December 1983. Dome was asking its creditors to reschedule its \$6.2 billion debt over a 10-12 year period. Later in the year, by October 5, the company was to have finished marketing its equity issue, which was crucial to its debt rescheduling plan, but falling international oil prices were impacting negatively on it and the company's 54 lenders agreed to extend the deadlines to February 5, 1985.

Canada-U.S. energy
relations in an
uncertain world
energy economy

In the context of Canada's continuing close and sometime difficult energy relations with the U.S., a Department of Energy, Mines and Resources paper prepared for presentation at a February 21 conference of engineers and economists associated with the Tennessee Valley Authority reviewed the existing global energy situation and focussed on its implications for Canada and the U.S. Three recommendations were made relative to more effective approaches by the two countries to bilateral energy relations and to energy planning within each country in an atmosphere of great international uncertainty. Canada and U.S. should strive for a consensus concerning the appropriate roles of government and industry. Secondly, the two countries should make better use of existing institutions to explore the opportunity for bilateral energy trade. Thirdly, Canada and the U.S. should extend their search for common purposes beyond North America through the International Energy Agency and agencies concerned with the developing countries. In particular, Canada and the U.S. have the financial and technical resources to assist developing countries and thereby promote world diversification of energy supply.

CHIP grants
1977-1984
totalled
\$810 million;
eligibility
increased

Effective March 1, more than 1.3 million additional homes became eligible for grants under the Canadian Home Insulation Program (CHIP) as a result of moving the qualifying date forward to September 1, 1977. All homes built before that date became eligible, the previous date having been January 1, 1971. Taxable grants of up to \$500 were available for 60 per cent of the combined material and labour costs for improvements completed by a contractor listed with the Canadian General Standards Board. CHIP was initiated in 1977 with the objective of reducing space heating requirements of existing dwellings by 30 per cent, in 70 per cent of the pre-1977 housing stock. In the period 1977 through to February 1984, the federal government had provided 2.1 million grants totalling \$810 million.

Ocean Ranger
hearings
completed

After 18 months of hearings and 14,000 pages of testimony from 104 witnesses, the formal public hearings of the Ocean Ranger inquiry were completed in March. The Ocean Ranger drilling rig sank in a storm off the Newfoundland coast on February 15, 1982 with the loss of 84 lives. The report of the Royal Commission was submitted later in the year, in August.

Come-By-Chance
refinery

In March, Petro-Canada decided to dismantle the mothballed oil refinery at Come-by-Chance, Newfoundland unless a buyer could be found by the end of the year. The refinery went bankrupt in March 1976 after operating for only 28 months. Petro-Canada bought it from its receivers in 1981. Surplus refinery capacity, worldwide, and the unsuitability of the refinery for medium and light crudes appeared to rule out its use in the foreseeable future. The refinery cost \$250 million to construct in the early 1970s. In mid-1987 a new owner, Newfoundland Energy Ltd, was preparing to operate the refinery.

Uranium resources
in Canada

In March, EMR published its report "Uranium in Canada: 1982 Assessment of Supply and Requirements". Uranium resources were shown to have remained essentially

unchanged from the 1980 estimates. Total resources in the measured, indicated and inferred categories amounted to 573,000 tonnes of uranium. Only about 10 per cent of that uranium would be required for the domestic market over the following 30 years to fuel more than 15,000 megawatts of nuclear power capacity in operation or committed for operation in Canada by 1993. Canadian producers shipped 7643 tonnes of uranium valued at \$838 million in 1982. As of January 1, 1983, outstanding uranium export commitments amounted to 60,000 tonnes, about 10 per cent of the country's known resources of uranium. The 1982 report was the eighth in a series that had been published regularly since the establishment in 1974 of the Uranium Resources Appraisal Group (URAG) in EMR. The first seven reports (1974 through 1980) had been released on an annual basis. This eighth report marked the beginning of a biennial publishing schedule.

Conservation and
Renewable Energy
Offices after
three years of
operation

In March, the twelve Conservation and Renewable Energy Offices (CREOs) across Canada completed their third year of operation. In that period they broadened their scope of activities in their support of the delivery of EMR's conservation and renewable energy programs. The two operational components of the CREO staffs were the Service to the Public (STP) unit and the Energy Project Management Unit (EPM). In addition, the recent establishment of a management information system enabled the CREOs to provide up-to-date progress reports to program authorities in Ottawa and to improve performance tracking abilities for the various conservation and renewable energy programs they were helping to implement and monitor in the provinces and territories.

Natural Gas
Fuelling Station
Program

In March, the first federal government payments to private industry under a program to promote development of a natural gas retail network for vehicles were announced. A total of 29 firms across Canada were receiving support under terms of the Natural Gas Fuelling Station Contribution Program. Up to \$40,000 was payable as a grant towards the capital cost of a fuelling station. In early 1984, over 1000 vehicles in Canada were powered by natural gas, most of them operating as fleet vehicles in service industries and the taxi business.

Supreme Court of
Canada decision
on the
Newfoundland
offshore
jurisdiction
issue

On March 8, the Supreme Court of Canada ruled on the federal reference of May 19, 1982 concerning resource ownership and jurisdiction over the Hibernia oil field area. The Court ruled unanimously that Canada, and not Newfoundland, had the right to explore and exploit the mineral and natural resources of the area, and had legislative jurisdiction to make laws in relation to exploration and exploitation of those resources. After the decision, there were calls in Parliament for the settlement of the outstanding political issues blocking an offshore agreement and requests that the federal government promptly resume negotiations with Newfoundland. In April, the Premier of Newfoundland embarked on a cross-country speaking tour to seek public support for a "moral" claim to offshore jurisdiction. In a statement in St. John's on April 5, the Minister of EMR set out details of the federal offer, claiming that it would ensure that for a long time

the provincial government would receive more revenue from the offshore resources than if they were provincial resources on land. The management provisions included the establishment of a joint offshore board, with the federal Minister having the authority to resolve any controversies that might arise. In his public statements in April and May, the Premier of Newfoundland maintained that Newfoundland, without ownership of the Hibernia oil resources, would not benefit in the long-term financially from those resources, and he called for a constitutional amendment that would transfer control over the offshore to the adjacent provinces. The matter was not settled until after a new federal government had come to power in September.

NEB approach to the regulation of pipeline tolls and tariffs

In March, as one of a series of information bulletins on its activities and procedures, the National Energy Board published a bulletin entitled "The Board's Approach on the Regulation of Tolls and Tariffs Under Part IV of the NEB Act". The bulletin provides a description of the Board's philosophy concerning its important function of regulating the tolls and tariffs charged by pipeline companies for the transportation of oil and gas interprovincially, internationally, and from offshore areas. Under Part IV of the NEB Act, the Board has the responsibility of ensuring that tolls charged by pipeline companies under its jurisdiction are just and reasonable, and that there is no unjust discrimination in the tolls charged or service provided.

No decision on a second Lepreau nuclear reactor

Consideration had been given for sometime to the possibility of a second nuclear reactor for Point Lepreau, N.B. but, in March, Maritime Nuclear, the company established by the New Brunswick Electric Power Commission and Atomic Energy of Canada Limited to study the feasibility of a second reactor, concluded that there were still a number of hurdles to be cleared before a decision could be made. They related in particular to negotiations of sales contracts for the power, financing of the project, and arrangements to guarantee labour stability.

Market Development Incentive Payments (MDIP) April/82-March/84 for DSEP, ICAP, GMAP and CNG

As a result of the September 1, 1981 Canada/Alberta Agreement on Energy Pricing and Taxation and the subsequent Agreement on Gas Pricing and Market Development Payments of November 25, 1981, the Province of Alberta undertook in March to make Market Development Incentive Payments (MDIP) to the federal government for the purpose of encouraging the expansion of natural gas markets in provinces east of Alberta. The program was to extend from November 1981 to January 1987. Four federal programs were funded, in part, from MDIP receipts: the Distribution System Expansion Program (DSEP); the Industrial Conversion Assistance Program (ICAP); the Gas Marketing Assistance Program (GMAP); and the Compressed Natural Gas (CNG) Fuelling Station and Vehicle Conversion Programs. The value of the Alberta incentive payments was determined in terms of the product of 30% of the Alberta Border Price and the quantity of 'new gas' purchased for domestic markets east of Alberta, new gas sales being those in excess of a base quantity established for a given period. MDIP earnings in the period November 1, 1981 to October 31, 1983

were \$31.7 million. A further \$14.0 million was earned by March 31, 1984. Program expenditures in fiscal 1982/83 were \$33.8 million and in 1983/84, \$82.1 million for the above noted programs - DSEP, ICAP, GMAP, and CNG, with the federal government making up the \$5.3 million deficit in 1982/83 and the \$70.1 million deficit in 1983/84.

**Canadian Ownership
Special Charge
- Ownership
Account**

As of March 31, 1984, the total amount drawn from the Canadian Ownership Account was \$1.65 billion. The only investment that had been financed out of the account was the acquisition of Petrofina Canada Inc. by Petro-Canada. The \$1.65 billion withdrawal was made up of the acquisition costs of 95 per cent of the shares and the related interim financing costs. Funds to acquire the remaining 5 per cent of the Petrofina shares were provided by Petro-Canada. A distinct account was set up in the Public Accounts of Canada over the authority of Energy, Mines and Resources Vote 5C, Appropriation Act No. 4, 1980/81 when the Canadian Ownership Special Charge (COSC) was introduced as part of the NEP in October 1981 for the purpose of financing investments or property acquisitions to increase Canadian ownership of the oil and gas industry. The method of operating the account was clarified in June 1982 by Section 65-61 of the Act to amend the Petroleum Administration Act SC-1980-81-82 C-114. COSC was set, retroactive to May 1, 1981, at \$7.25 per cubic metre (0.8 cents per litre) on all oil processed or used domestically (including imported petroleum and petroleum products), at 0.14 cents per gigajoule on pipeline gas, at \$2.00 per cubic metre for ethane and at \$3.55 per cubic metre for propane and \$3.95 for butane. The total levies collected to March 31, 1984 were \$2.48 billion (\$786.5 million in fiscal 1981/82, \$889.1 million in fiscal 1982/83, and \$804.5 million in fiscal 1983/84).

**Propane Vehicle
Program extended
to all propane
vehicles**

Effective April 1, federal government assistance was provided, in the form of taxable grants up to \$400, to owners of private non-commercial vehicles wishing to convert their vehicles to a propane fuel system. The Propane Vehicle Program, introduced in June 1981, had previously been restricted to commercial and farm vehicles. The revised program also covered dual propane and gasoline systems. At this time, there were about 60,000 propane-powered vehicles in Canada and over 100,000 propane fueling stations. A target of 100,000 vehicles had been set for the end of 1985. The cost of converting a vehicle to a propane system ranged upwards from about \$1,200. By using propane, which was little more than one half the cost per litre of gasoline, a saving on 5,000 litres of fuel would amount to about \$950 a year. About 10,000 of the 21,000 cubic metres per day of propane produced in Canada in 1984 were used in the domestic market, mostly for petrochemical feed stock and home heating. The rest was being exported. There was a supply potential to meet up to 10 per cent of the country's transportation gasoline requirements.

**Canada/B.C.
Agreement of
Sept. 1981 on
pricing amended**

In April, the Governments of Canada and British Columbia completed negotiations leading to amendment of the September 24, 1981 Agreement covering petroleum pricing through to 1986. The amendments applied to the period

July 1 1983 to December 31, 1984. Oil from infill wells and production that previously received the Special Old Oil Price (SOOP) were to receive the New Oil Reference Price (NOR), essentially the world price. There was also agreement on the revised method of calculating NORP quality differentials, to ensure that the price for oil of a particular quality did not exceed the price in Montreal for international oil of equivalent quality. The amendments for B.C. followed similar agreements with Alberta in June 1983 and Saskatchewan in October 1983.

Canadian
Safeguards
Support Program
extended to 1989

In April, the Atomic Energy Control Board (AECB) and Atomic Energy of Canada Limited (AECL) announced that the Canadian Safeguards Support Program would be continued until 1989, with a total of \$15.5 million in federal funding. The Canadian government had consistently and strongly supported the safeguards system of the International Atomic Energy Agency (IAEA) since the establishment of the Agency in 1957. The safeguards system had been designed to ensure that all nuclear materials were not used in such a way as to further any military purpose.

Natural gas
markets -
industrial
incentives

In April, the Government of Canada and Alberta agreed on an incentive plan designed to maintain and expand natural gas sales in domestic industrial markets. The three-year plan, effective May 1, 1984, included two components: one relating to load retention to protect existing industrial markets; and the other relating to load development, aimed at fostering increased use of natural gas. A discount of \$0.35/GJ was to apply to all gas purchases by eligible industrial customers which exceeded 75 per cent of their "base" quantity in a given year. The base was to be equal to the average of 1982 and 1983 gas purchases, or 100,000 GJ/annum, whichever was greater. The two governments, as well as producers, were to share the costs of the rebate. In addition, the federal government agreed to curtail its revenues from Market Development Incentives Payments (MDIP) in a manner determined by annual agreement (see note for March 1984 on MDIP).

Petro-Canada's
1983 annual
report

Petro-Canada issued its annual report for 1983 in April 1984 which recorded funds from operations of \$676 million, up 35 per cent from 1982. After deducting preferred share dividends, funds available for re-investment and debt retirement rose 55 per cent to \$590 million, the improved results being mainly due to increased production of conventional and synthetic crude oil which more than offset a drop in natural gas sales and lower refining and marketing profits.

COGLA's 1983
annual report

The Canada Oil and Gas Lands Administration (COGLA) issued its annual report for 1983 in April 1984. It recorded that oil industry spending offshore and in the Arctic rose by 45 per cent to \$1.75 billion in 1983 compared with \$1.2 billion in 1982. During 1983, COGLA signed an additional 73 agreements with oil companies for terms of 3 to 5 years, which would involve the drilling of about 88 wells at a cost of \$4.7 billion. In 1983 COGLA authorized the drilling of 101 new wells -- 21 in the East Coast offshore, 14 in the Beaufort Sea and Mackenzie River delta, 62 in the mainland northern territories and 4 in the

Arctic Islands. Off the East Coast, 17 active drilling units completed 20 wells compared with 11 completed by 13 drilling units in 1982.

**Conservation
and
Non-Petroleum
Programs 1984-85**

Commencing the fiscal year 1984/85, on April 1, there were 26 federal conservation and non-petroleum programs in operation, some of which had been in operation since the 1970s but most having been introduced as part of the National Energy Program in October 1980. These programs in total had a 1984-85 budget of \$570,374,000, with the Canada Home Insulation Program (\$210 million) and the Canada Oil Substitution Program (\$140.4 million) accounting for 60 per cent of the total budget. The programs were classified under eight headings: Electrical, Coal, Renewable Energy, Transportation, Industry, Home Energy, Federal Energy Management, and Building Energy Technology. This did not include the largest NEP component, the Petroleum Incentives Program, nor funds for heavy oil upgraders, some major transportation programs, other R&D programs, or for Petro-Canada International. For the four-year period, 1981-82 to 1984-85, the total NEP budget, as announced in the NEP Update of May 1982, was \$9.1 billion. Later in 1984, the new federal government announced in its Economic and Fiscal Statement of November 8, 1984 a number of program adjustments and reductions which would result in savings of \$613.4 million in the EMR budget alone, in the 1985-86 fiscal year.

**Douglas Point
nuclear reactor
to be shut down**

In April, Atomic Energy of Canada Limited (AECL) announced that the Douglas Point nuclear plant, which went into operation in 1966, would be closed because it had become uneconomic. AECL owned the plant and Ontario Hydro operated it. AECL reported that the plant lost \$1.1 million in 1983. It was being decommissioned in 1985. It was Canada's first full-scale nuclear power station and had a capacity of 200 MW(e).

**Canadian
Petroleum
Association
brief to Senate
Committee on
Energy**

In April, the Canadian Petroleum Association of Canada (CPA) presented a brief to the Senate Standing Committee on Energy. The Association claimed that without any net revenue loss, the federal and provincial governments could help stimulate a national economic recovery by offering world prices for oil and gas, plus new tax and royalty concessions. The CPA believed that those measures would generate so much additional drilling activity and such an increase in overall industry revenues, that the two levels of government could collect just as much revenue, even with lower income tax and royalty rates. The Senate Committee was on record as being sceptical of the Association's claim. In its presentation in June, the Independent Petroleum Association of Canada also called for lower taxes and royalties and world prices for oil, but flexibility in natural gas pricing to encourage the sale of the existing gas surplus resulting from a tight U.S. market.

**Canada/USSR
Agreement on
Scientific
Cooperation
in the Arctic**

On April 15, a protocol was signed between Canada and the USSR for joint scientific work in Soviet and Canadian Arctic regions. Canada's objective was to negotiate a modest collaborative program under four themes: Geoscience and Arctic Petroleum, Northern and

Arctic Environment, Northern Construction, and Ethnography and Education. Five projects constituted the geoscience component of the program as agreed to in April: regional geological mapping of the Arctic land areas; compilation of a tectonic map of the Amerasian sub-basin of the Arctic Ocean and adjacent shelves; joint geological field studies of platform structures (Precambrian) and Arctic sedimentary fold belts; compilation of stratigraphic correlation charts for Cambrian and Phanerozoic deposits; and geological and geophysical studies of Arctic natural gas hydrates and their physical properties. The agreement was signed under the auspices of the 1971 General Exchange Agreement between Canada and the USSR. The Geological Survey of Canada coordinated Canada's participation in Theme I, Geoscience and Arctic Petroleum, of the new agreement.

Quebec-
Newfoundland
power dispute
-- Supreme
Court decision

On May 4 the Supreme Court of Canada ruled that it was unconstitutional for Newfoundland to try to cancel a long-term contract that provides Labrador hydroelectric power from the Upper Churchill Falls to Quebec. In an unanimous 8-0 ruling, the Court struck down a 1980 Newfoundland provincial statute that the Newfoundland government had intended to use to reclaim all of the water-power rights on the Upper Churchill River. The judgement found the province's Water Rights Reversion Act to be ultra vires of the Newfoundland legislature on the ground that it was a "colourable attempt to intervene with extra provincial rights". The Court concluded that, although the 1980 legislation appeared to deal only with property matters and civil rights within Newfoundland, there was need to look beyond the wording of the statute to determine its true character. Following the Supreme Court decision, the Premier of Newfoundland asked the Prime Minister to intervene in his province's dispute with Quebec over the long-term power contract which had been signed in 1969. The Premier offered his support for a parliamentary declaration making the power development "a work for the general advantage of Canada", as long as provincial powers to manage resources were safeguarded. The federal government was also asked to consider amending the National Energy Board Act to extend the "common carrier principle to electrical power lines".

Beaufort Sea
still considered
promising

In May, Imperial Oil Limited's chairman stated that despite growing disenchantment in the financial community about the result of Beaufort Sea exploration, the company had found about two-thirds of the oil needed to start development. Later in the year, in October, he referred to the promising Amauligak offshore discovery in the Beaufort, and noted that oil from the region could be most effectively transported by pipeline along the Mackenzie River valley to Norman Wells, a distance of 400 miles. A pipeline from the Norman Wells oil field to northern Alberta was completed in 1984. Other companies active in the Beaufort-Mackenzie Delta region also remained optimistic about its production potential despite concerns in the financial community about high costs.

Persian Gulf
hostilities
continue to
disrupt shipping

During May, oil traffic in the Persian Gulf continued to be disrupted. In one week six tankers were sunk as the Iran-Iraq war continued unabated. However, the International Energy Agency (IEA) reported that attacks on

Persian Gulf shipping had had no significant impact to that time on world oil supply and that price trends reflected a general perception that supplies were more than adequate to meet demand in the short term. Nevertheless, there were increasing concerns among the world oil and shipping industries about continued operation in the Persian Gulf.

Quebec Hydro's
electricity
exports

In May, the National Energy Board rejected a request by Newfoundland to adjourn hearings on Hydro-Quebec's application to export power in an amount of up to 24 billion kilowatt hours to the New York Power Authority which the Board had approved in March. Newfoundland took the position on this and other export applications in 1984 that it should have the right to buy surplus power from Quebec before it is exported. It also asked the Federal Court to grant it leave to appeal the March 1984 NEB decision authorizing the export of power to New York State. Later, in September, the NEB approved an export of seven billion kilowatt hours to New England, annually, of interruptible power between 1986 and 1995, and four billion kilowatt hours annually between 1995 and 2002 but, in response to Newfoundland's concerns, reduced by 50 per cent the terms of one of the licences and denied an application to construct a 120 kilowatt transmission line to export 150 megawatts of firm power to Vermont. Newfoundland served notice of its opposition to this 10-year export contract, and indicated its intention of opposing all Quebec power export proposals until Quebec agreed to "explore the ways Newfoundland Labrador hydro's electricity needs can be met".

Supreme Court
decision on
B.C. inland
waters juris-
diction

On May 17, the Supreme Court of Canada established some limits on the federal government's rights over the offshore, awarding British Columbia ownership over inland waters between the mainland and Vancouver Island. While the Court had confirmed federal government control of the B.C. offshore in 1967, the earlier decision had left the question of the inland sea unsettled and the May 17 decision confirmed a 1976 ruling by the B.C. Court of Appeal. Although the Supreme Court had said the inland waters would have passed to federal jurisdictions at Confederation because they were British Territory, it noted that the British government had awarded them to the Colony of Vancouver Island and British Columbia through the 1866 Imperial Act. That earlier judgement had said: "As of 1866, the waters and submerged lands between Vancouver Island and the mainland were part of the United Colony of B.C.".

NEB opposed
approval-in-
principle of
large energy
projects

In an appearance before the Senate Standing Committee on Energy and Natural Resources in May, the Chairman of the National Energy Board stated that the Board opposed any approval-in-principle approach for the regulation of large energy-related projects. Early approval left applicants at risk because later components of a project might be approved only in a manner unacceptable to the applicant. In addition, intervenors in hearings on later project phases would bear the onus to demonstrate, not only why the project should not be built, but why it should be stopped.

Cape Breton
Coal area
expansion

In May the federal government confirmed its commitment to the Nova Scotia coal mining industry with the announcement that it would spend over \$300 million on development. An amount of \$237 million would be available through the Cape Breton Development Corporation for the immediate start-up of the Lingan-Phelan colliery and the extension of the Victoria junction coal preparation plant. An additional \$24 million was allocated to complete an exploratory tunnel in the Donkin-Morien Coal reserve, and \$64 million to construct a wash plant and railway loading dock at the Prince mine in the Sydney coal field area.

James Bay hydro
- Phase 1
nearing
completion -
surplus power
forecast to
the 1990s

On May 27, the Premier of Quebec officially opened the LG-4 generating station, and its first turbine began to produce power at this James Bay site. The ceremony marked the near completion of the last station included under Phase 1 of the La Grande Complex. On completion of the LG-4 station in mid-1985, the total installed capacity of the three stations comprising Phase 1 would be 10,269 MW (LG-2:5,328 MW; LG-3:2304 MW; LG-4:2637 MW) with an annual energy capability of 62.2 TWh (62.2 billion KWh). Phase 1 would be the second largest hydroelectric development in the world after the Itaipu project in Brazil. The LG-2 is the largest in Canada, followed by the 5,224 MW Churchill Falls station. The estimated cost of Phase 1 in 1984 was in the order of \$14.6 billion. The initial estimate made in 1972, when the site of the La Grande development was selected, was \$5.8 billion, with estimates being continually revised upward as the project proceeded. In 1978, the LG-1 site was eliminated from Phase 1 in favour of additional generating units at the LG-3 and LG-4 sites. In 1971 when the project was announced, a long-term electricity growth rate of 7.4 per cent per annum was forecast. Subsequent downward revisions led to an 1983 estimate for the long-term of 3.2 per cent per annum, leaving an estimated surplus after completion of LG-4 in 1985 of some 7,600 MW and between 45 and 50 TWh per annum. In 1984, the projected surplus for 1990 was 30-32 TWh, indicating that the output of Phase 2 would not be needed until well into the 1990s.

C.D. Howe
Institute
proposals for
replacement of
NEP pricing and
tax measures

In a presentation to the Senate Standing Committee on Energy in May, the C.D. Howe Institute claimed that a more market-oriented energy policy than the NEP would best achieve Canada's economic and energy objectives. The dimensions of such a policy would include: a single price for Canadian oil production determined by the international oil price; phased de-regulation of natural gas prices; an integrated federal-provincial tax system, with tax rates graduated for oil and gas from different sources; a mechanisms for dealing with future energy supply or price shocks; and a greater reliance upon market prices instead of differential government subsidies as incentives for exploration and development. After the change in government in September, several of these provisions were implemented.

Canada-N.S.
offshore
legislation
approved

On May 31, legislation was tabled in Parliament to establish formally in law the major elements of the Canada-Nova Scotia Offshore Oil and Gas Agreement of March 2, 1982. Parallel legislation was being introduced in the Nova Scotia legislature. The major elements of the

legislation included the establishment of a permanent Canada-Nova Scotia Oil and Gas Board; provision for the province to receive all offshore revenue except federal corporate income tax until its per capita fiscal capacity reached 110 per cent of the national average; 50 per cent of any Crown share in a natural gas field; a \$200 million development fund for infrastructure; and protection of equalization payments for up to ten years. The two governments agreed to a package of delegation of authority to the Oil and Gas Board which would manage petroleum activities in the offshore Nova Scotia area. The provincial government would have ultimate authority for management of the Bay of Fundy, Sable Island and an area around the island, while the federal government would have the same authority in other offshore areas. Bill C-43, the Canada-Nova Scotia Oil and Gas Agreement, received Royal Assent on June 29, 1984 and it was proclaimed, effective July 29, 1984. At the time of proclamation, companies had committed spending of about \$2.4 billion over the duration of 33 new exploration agreements.

Husky Oil Ltd.
upgrader
proposal
supported by the
Alta., Sask.
and federal
governments

In June, a federal-provincial agreement to proceed with a \$3.2 billion bi-provincial heavy oil upgrader and field development project was announced by the federal, Alberta and Saskatchewan governments and Husky Oil Operations Ltd. The upgrader, to be located near Lloydminster on the Saskatchewan-Alberta border, would be designed to convert heavy oil and crude bitumen into synthetic crude oil suitable for refining in Canada. Scheduled for completion in 1989 at an estimated cost of \$2.3 billion, including oil resource development costs, the upgrader would have a capacity of 8,571 m³ (54,000 barrels) a day. The federal government agreed to provide loan guarantees of \$780 million and each of the provinces, \$390 million, for a total of \$1.56 billion. In addition, the federal government offered a \$50 million grant to help defray start-up costs, the New Oil Reference Price (NORP), and reduction of the Petroleum and Gas Revenue Tax (PGRT). The provinces offered significant royalty benefits to encourage the project. In September, Husky filed with the Saskatchewan government, the documents required to commence an environmental assessment of the proposed upgrader facility.

Newfoundland-P.C.
Party offshore
agreement

On June 14, the Leader of the Progressive Conservative Party of Canada and the Premier of Newfoundland announced an offshore agreement in principle consisting of 18 points including recognition of Newfoundland's right to be the principle beneficiary of offshore oil revenues, consistent with a strong and united Canada. While the federal government would have the ultimate decision in matters affecting the pace of exploration and production until national self-sufficiency was reached, or if it had been lost, Newfoundland would have final authority on development and management plans. It would also have the authority to set and collect its own royalties from the offshore. The terms of the agreement in principle were set out in an exchange of letters, dated June 14, 1984, and followed several weeks of negotiations between the Newfoundland government and the Party Leader's Office.

Canada-U.S.
boundary dispute
- Dixon Entrance
area

In June, questions were raised in Parliament concerning the proposed oil drilling leases being put to tender by the U.S. government to interest American petroleum companies in the Dixon Entrance area, a territory that was involved in a Canada-U.S. maritime boundary dispute. Exploration permits covering 100,000 square kilometres of the continental shelf near Dixon Entrance were being offered. However, the area offered overlapped leases issued to Petro-Canada by the Canadian government. The boundary from the B.C. mainland across Dixon Entrance to Cape Muzon, the southernmost point in Alaska, was set in 1903 by an international commission and has commonly been referred to as the "AB Line". Canada has contended that the extension of this line into the offshore waters is the maritime boundary between B.C. and Alaska. The U.S. has claimed a much more southerly dividing lines. The last negotiations on overall border issues between Canada and the U.S. broke down in the late 1970s when discussions failed to progress beyond the Maine border impasse.

Federal
Environmental
Assessment and
Review Process
(EARP)

The Federal Environmental Assessment and Review Process (EARP) was established by Cabinet decision on December 20, 1973 and amended by Cabinet on February 15, 1977. Since its creation, the EARP has been involved in a range of energy development matters, most dealing with nuclear issues, and hydrocarbon development in the frontier. EARP calls for the screening by line departments of all initiatives that have a potential for environmental impact, and for referral of these to the Minister of the Environment for public review. For a number of reasons, the EARP has been criticized by government departments, industry and the general public virtually since its inception. Some of this criticism related to the need for increased "formality" of the system, for improved procedural and scoping operations on the part of public review panels and for more visibility of the screening phase. In response to these criticisms, Cabinet passed an Order-in-Council on June 20, outlining new guidelines for the EARP. The Order-in-Council directed the initiating department for a proposal to consider "the potential environmental effects of the proposal and the social effects directly related to those environmental effects". Provision was made to further expand the scope of the EARP to consider general socio-economic effects, technology assessment and the need for the proposal. This had the effect of enabling the EARP to consider a much broader range of issues than was originally conceived. However, such an expanded scope would only be considered on the recommendation or with the approval of the initiating Ministers. On other occasions, the consideration of social issues would be limited to those matters directly resulting from the environmental changes associated with the project.

Uranium and
nuclear energy
outlook

The 24th Annual Conference of the Canadian Nuclear Association held in Saskatchewan in June, together with the 5th Annual Conference of the Canadian Nuclear Society and the participation of the Uranium Institute of London, England dealt with the theme of electricity and uranium - a brighter future, and included a number of uranium and nuclear energy forecasts. The outlook for uranium for the short to medium term was one of pessimism, with some degree

of optimism beginning in the 1990s. The annual increase in uranium requirements to 1990 was expected to be 6 per cent worldwide, but there was concern about the increased use of spot-market price indicators in uranium contracts which would contribute to the destabilization of the market. Note was taken of the major uranium resource development underway in Saskatchewan where very high grade deposits were being developed and the Key Lake Mining Corporation operation would be the largest uranium producer in the world by the end of 1984. In electrical generation, assuming Canada's economic growth averaged 3 per cent per annum, this country would need new capacity by the mid-1990s which would require decisions soon on new plants or plant expansion because of the long lead-times involved. For the longer-term world outlook, forecasts of energy requirements were presented by way of demonstrating that every energy supply system the world can develop will be needed and, from this perspective, nuclear energy appeared to be an imperative, not an option.

Dome's Western LNG Project

On June 29, Dome Petroleum announced it was abandoning management of its proposed liquified natural gas plan (Western LNG Project) for the shipment of LNG to Japan from a plant on the B.C. coast near Prince Rupert. The project had been under development since 1980. At this time, Dome dropped its interest in the project from 80 per cent down to 10 per cent. This left a committed participation of only 30 per cent in the project - the other two participants with 10 per cent each being Union Oil Co. of California and NIC Resources, a subsidiary of Japan's Nissho Iwai Corp. While the B.C. government had authorized the export of one-half of the 3.2 trillion cubic feet of natural gas called for in the agreement, Alberta had indicated it would not authorize any new gas exports pending the negotiation of a pricing agreement with the U.S. In October, Union Oil and NIC Resources formed a third company, Canada LNG Corporation, to endeavour to meet an October 31 deadline set by potential Japanese buyers. In November, Japanese utilities extended the project deadline a further 60 days to see if their proposed purchase of 2.9 million tonnes of LNG, annually, could be met over a 15-20 year period. The annual value of such a shipment would be \$1.2 billion. In December, the Alberta government gave approval for the export of up to 1.5 trillion cubic feet of natural gas, as LNG, to Japan over 20 years, with the proviso that producers would get either a weighted average price based on exports to the U.S., or the Alberta border price, whichever was greater. Negotiations on the project continued in 1985.

Petroleum Incentives Program -- PIP payments of \$2.4 billion in 1981-1983

On June 21, the first report of the Petroleum Incentives Administration (PIA), covering the first three years of the Petroleum Incentives Program (PIP) and the Canadian Ownership and Control Determination (COCD) Program was issued. Under PIP, incentive payments were being made to petroleum firms exploring for new sources of oil or natural gas, and COCD certified the level of Canadian ownership and control of firms applying for PIP payments, thereby determining their degree of eligibility. The report, "Petroleum Incentives Administration Report -- January 1, 1981 to December 31, 1983", described the

establishment of the two programs and their operations to the end of 1983. Total PIP payments by the Government of Canada to December 1983 was \$2.4 billion, of which \$1.1 billion went to the Atlantic offshore and \$990 million to the Beaufort Sea region, the areas of major activity. Dome Petroleum and Petro-Canada received about half of the \$2.4 billion total. Alberta administered its own program, adding a further \$800 million in grants for the three-year period.

Concerns about
the Petroleum
Incentives
Program

In June, with the publication of the Petroleum Incentives Administration report for 1981-1983, a great deal of attention was being directed to questions of cost, effectiveness and discriminatory nature of the program. PIP grants were discriminatory with respect to the type of activity conducted, its location, and the ownership and control status of the recipient. The grants were concentrated in the hands of a few players. An increase in resource activity had occurred in the Canada Lands but no new production had yet resulted. The interventionist nature of PIP had been challenged by those who claimed there was too much bureaucratic discretion. PIP had not been available for certain type of expenditures which might also be desirable such as the oil sands and heavy oil projects.

Pickering
nuclear station
repair costs

In June, Ontario Hydro estimated it would cost \$400 million more than expected to repair the two nuclear reactors at the Pickering Station, thereby raising the total estimate to \$1.1 billion. Tube replacement would cost as much as \$650 million, and the cost of coal-fired replacement power linked to the loss of the two 500 MW Pickering reactors until 1987 would cost \$483 million.

Gasoline
pricing

During June, as in previous months of the year, gasoline pricing remained a contentious issue and was raised a number of times in Parliament. There were complaints that prices were being maintained at artificially high levels due to unfair practices employed by the major companies to the detriment of smaller, independent dealers. There was also criticism that the government created artificially low prices via the Petroleum Compensation Charge. The oil industry was subjected to criticism concerning the price variance between leaded and unleaded gasoline.

PC Energy Policy
Statement

On July 5, the Leader of the Progressive Conservative Party of Canada released an energy policy statement which subsequently became the basis of the federal government's energy program after the change of government in September. The policy statement set out five goals: self-sufficiency and energy security, fair treatment for consumers and producers, enhanced Canadian participation, energy as an engine of growth, and federal/provincial/industry cooperation for a stable planning environment. The statement also included specific policy initiative proposals relating to taxation, oil and natural gas pricing, industrial off-oil programs, oil sands projects, electricity exports, the Petroleum Incentives Program, and the Crown share. These and other proposals were subsequently developed and included in programs announced later in the year and in 1985.

Panarctic Oil Ltd.
activities in
the Arctic
Islands - Bent
Horn oil
shipment
proposal

In July, Panarctic Oils Limited warned that frontier exploration and drilling would be in jeopardy unless the federal government permitted companies to make some money on the high-risk activity associated with frontier development. The company was seeking approval to ship 100,000 barrels of crude oil from its Bent Horn oil field in the High Arctic. Without some indication of the possibilities of near-term income, Panarctic partners who had spent more than \$1 billion in the previous 10 years would withdraw from northern oil and gas search. Since the drilling in 1961 of a well on Melville Island, 171 wells had been completed in the Arctic Islands, 31 of them from reinforced ice platforms in offshore area of the Sverdrup Basin. Panarctic had reported 18 oil and gas discoveries since its first gas discovery at Drake Point on Melville Island in 1969. Plans for development of Arctic Island hydrocarbons originally centred on the Polar Gas Pipeline proposal to transport gas to southern markets along a route west of Hudson Bay but minimum threshold gas reserves of 25 trillion cubic feet (708 billion m³) had never been reached. Later, emphasis shifted to transporting LNG by tanker from the Drake Point field to eastern Canada or European markets but that proposal, the Arctic Pilot Project, remained suspended in the 1980s pending improvement in price and markets. In 1984, Panarctic was attempting to market oil from the Bent Horn field on Cameron Island by moving one 10,000-barrel tanker shipment per year, in the summer season commencing in 1985, as a demonstration project in preparation for production from larger fields.

Peace River oil
sands project

On July 9, the federal and Alberta governments announced that agreement had been reached with Shell Canada Resources Limited on the royalty and fiscal terms for the company's proposed 1,600 cubic metre per day (10,000 b/d) Peace River oil sands project. Alberta would provide for reduced royalty payments until capital costs had been recovered, and the federal government would provide earned depletion allowance and relief from the Petroleum and Gas Revenue Tax (PGRT) until payout. At an estimated cost of \$200 million, the commercial project would involve the drilling of about 200 wells and expansion of steam generation and production facilities. Replacement wells and field facilities over the 30-year life of the project would involve an additional \$500 million investment at the Peace River site, 55 km northeast of the town of Peace River. Shell had been operating a pilot project at this site for five years, and it had demonstrated successfully the technology required to extract bitumen from deep oil sands as a basis for the first commercial in situ project in Alberta's Peace River region.

Petroleum
Monitoring
Agency report
for 1983

In July, the Petroleum Monitoring Agency released its report for 1983 which showed that cash income from total petroleum industry operations (internal cash flow) rose by 16 per cent to \$8.5 billion in 1983 compared with 1982, while net income overall decreased 11 per cent to \$1.5 billion. Total capital expenditures by the industry declined 13 per cent to \$10.2 billion. A rise in upstream expenditures, the first year-to-year increase since 1980, was more than offset by a drop in downstream spending and

lower outlays abroad. Spending on provincial lands rose 4 per cent while increasing by 34 per cent on Canada Lands. Federal Petroleum Incentive Program (PIP) grants financed \$1.2 billion of the \$2.2 billion of Canada Lands exploration. Total revenue available for sharing among industry and governments rose \$1.4 billion to \$21.8 billion in 1983 with the industry and provincial governments both participating in the increase while the federal government received a smaller share. The federal government's portion decreased from 26 per cent to 21 per cent - primarily due to lower revenues from the Natural Gas and Gas Liquids Tax; the provincial governments' share increased 2 percentage points to 30 per cent; and the industry's share rose 3 per cent to 49 per cent. Canadian ownership of the petroleum industry, based on upstream revenues, rose 1.5 percentage points to 40.5 per cent while Canadian control declined 0.5 percentage points to 37.8 per cent. Based on petroleum-related revenues (upstream plus downstream), Canadian ownership and control rose 2.5 and 2.3 percentage points, respectively, to 37.2 per cent and 27.8 per cent.

New Canadian
natural gas
export pricing
policy -
negotiated
prices

On July 13, the federal government announced that exporters of Canadian natural gas would be free to negotiate prices with their customers, for implementation as early as November 1. Under the new policy, exporters could hold to the existing two-tiered administered price, or they could negotiate a price that would be subject to review by the National Energy Board, based on established criteria, and to subsequent approval by the Government of Canada. Where the negotiated price replaced the existing government-administered price, the exporter was required to demonstrate that the negotiated price, in combination with other contract provisions, would provide an enhanced economic return to Canada compared with the existing Volume Related Incentive Price (VRIP) program, as implemented in June 1983 and modified in November of that year. In many ways, the new Canadian export policy mirrored the U.S. gas import policy guidelines issued earlier in the year, in February. Both policies contemplated competitive, market-responsive, flexible contracts.

Cost of the NEP
to Ontario

In a submission to the Standing Senate Committee on Energy and Natural Resources in July, the Ontario government claimed that abrupt oil and gas price increases under the NEP had cost the province 90,000 jobs and reduced Ontario's total real output by 3 to 4 per cent, and were responsible for about one-third of the province's inflation as experienced between 1979 and 1983. The wholesale cost of oil and gas to the province almost doubled to \$9 billion in that period. Ontario claimed that the real beneficiaries of the NEP were the federal government and the oil industry.

In praise of
the CANDU

In a July 25 article, the Wall Street journal found much to praise in Canada's nuclear power industry, in contrast with the U.S. experience. The Canadian nuclear program had been so successful because the nation devoted its efforts to perfecting one product: the CANDU reactor. Confidence also stemmed from the fact that Canadians tended to be more trusting of their utilities and because Canadian industry had not suffered as many problems as that in the U.S.

Distribution System Expansion An appraisal available in July showed that under the Distribution System Expansion Program (DSEP), total payments in 1983-84 were \$45.9 million and in 1984-85, an estimated \$123.9 million. These payments related to total capital costs of projects supported by DSEP of \$143 million in 1983-84 and an estimated \$243.8 million in 1984-85.

The Heatline - a home energy conservation service A review prepared in July showed that there was continuing interest in the 'Heatline', a national toll-free telephone advisory service providing practical economic advice on ways to save energy and money in the home. The Heatline was part of the Home Energy Programs Division in the Department of Energy, Mines and Resources which, in 1984, was continuing to deliver the Canadian Home Insulation Program (CHIP), the Canada Oil Substitution Program (COSP), and the Enersave Analysis for Home Insulation which through the Enersave Questionnaire provided a free written information service to home owners on the most economical ways to make homes more energy efficient. Records on the telephone Heatline information centre showed that in its first year, starting in September 1977, it provided information to 2,290 callers which increased to an annual total of 118,850 in 1981. A decline to 55,990 in 1983 reflected the general shift in 1982 and 1983 in public concerns away from energy matters. A pickup to an estimated 89,400 in 1984 was due to a change in the eligibility date for CHIP, announced in March, and advertising programs which referred householders to the Heatline for program and technical information.

Earth Physics research in EMR - G.S.C. In a review in July of energy research programs conducted by the Earth Physics Branch (now part of the Geological Survey of Canada) in EMR, attention was directed to programs that had been conducted in the previous five years in response to national requirements. These included evaluation of Canadian geothermal energy resources and methods for their economic exploitation, the constraints posed by permafrost and gas hydrates to petroleum development in the north, and the management of nuclear fuel wastes by their disposal in deep, stable geological formations. The Earth Physics Branch was also extensively involved in 1983 and 1984 in conducting and assessing the results of the CESAR-83 multi-disciplinary Arctic geoscience expedition which studied the Alpha Ridge. The goal of that program was scientific understanding, which might eventually lead to energy sources. On-going research was being conducted of earthquake patterns in various regions across Canada including areas having hydrocarbon potential. This research permits reliable calculations of the risk posed by seismic ground motion to eventual oil and gas production installations.

EMR Research Agreements Program In July, announcement was made of EMR research grants of \$1.4 million for 1984-85. These funds were to be used in support of 158 research projects in the natural, physical and social sciences and in engineering in 40 research centres across Canada. Included in the research projects to be supported were 16 for energy technology research, 19 in energy policy, and several in support of energy conservation research, and also for economic studies

concerned with petroleum resource development. The EMR Research Agreements Program had been operated on an annual basis since the mid-1970s.

Frontier
Geoscience
Program

In August, a major program to gather frontier geoscience information was announced by the Minister of Energy, Mines and Resources with the objective of stimulating increased energy exploration and development and helping to achieve long-term energy efficiency. The program proposal in preparation over a three-year period, was designed to establish a geoscience data base from which the oil and gas potential of the East and West Coast offshore regions, the Arctic Islands and the Western Arctic could be more precisely determined. A budget of \$20 million a year was planned. The increase in Canadian territory, due to the extension of offshore jurisdiction to 200 miles, and the emphasis on frontier exploration had increased the demand by both industry and government for more geoscience information.

Royal Commission
Report on the
Ocean Ranger
disaster

On August 13, the first report of the Royal Commission on the Ocean Ranger Marine Disaster was made public. The Royal Commission presented 60 recommendations concerned with marine safety and oil industry operations in Canada's difficult and challenging offshore conditions. Release of the report was followed in August by a conference on safety in the Canadian eastern offshore, held at Memorial University in St. John's. Public hearings on the report were scheduled for Halifax and St. John's and, after that consultation process had taken place, the Royal Commission would prepare a final report for the Newfoundland and federal governments by March 31, 1985. In its first report, the Commission's findings blamed both the design of the drilling rig and the training of its crew on the loss of the rig, as well as the severity of the storm. The findings were similar to those of the U.S. National Transportation Safety Board and the U.S. Coast Guard. All three inquiries criticized the rig's owner, Ocean Drilling and Exploration Company of New Orleans, for failing to provide safety equipment and training. The Ocean Ranger semi-submersible drill ship sank in a storm, 175 nautical miles east of St. John's on February 15 with the loss of 84 lives.

Syncrude fire
causes 4-month
shut-down

A fire in the Syncrude Canada Ltd's oil sands plant at Fort McMurray, Alberta, on August 15 badly damaged the plant's two cokers. As a result this oil sands operation was shut down until late December. After four months and over \$300 million in lost revenue and \$50 million in repair costs, Canada's largest synthetic crude oil producer was back in full production at the end of the year at 109,000 barrels a day. The shut-down was caused by a rupture in a steel pipe which resulted in an explosion and fire.

Petro-Canada
withdraws from
Scotia Shelf
project

In August, a consortium of Petro-Canada and three other companies withdrew from a half-billion dollar exploration program on 1.6 million hectares adjacent to the Venture gas field on the Scotia Shelf. The companies relinquished their rights one year early after drilling two dry wells. Results did not warrant the drilling of the additional wells which would have been required in order for the companies to maintain their leases.

PIP payments
1/1/81-31/8/84

To the end of August, total payments under the Petroleum Incentives Program (PIP) since its inception on January 1, 1981 amounted to \$3,485,900,000.

Privatization
recommendation
for Petro-Canada

In August, the former chairman of Petro-Canada recommended that the federal government should start selling off the Crown Corporation to the private sector because it was now a major force that was Canadian-owned and that was responsive to Canadian interests. If that responsiveness could be maintained, there would be nothing wrong with privatizing the company. It could be split into a holding company controlled by the federal government and an operating company owned by public shareholders and run on a commercial basis.

Arctic Pilot
Project NEB
application
dismissed

On August 2, the National Energy Board dismissed the application of the Arctic Pilot Project (APP). The APP had applied for approval to proceed with a project to ship liquified natural gas (LNG) from Melville Island, in the High Arctic to an eastern Canadian port where it would have been transformed back into the gaseous state and transported to Canadian and U.S. markets. The application was dismissed because the APP had agreements with U.S. buyers but the agreements expired on August 4. NEB hearings on the APP application had commenced on February 2, 1982 and were adjourned by a decision of August 31, 1982.

Dome Petroleum's
debt
rescheduling
problems

On August 1, Dome Petroleum reached an agreement with the lenders to re-scheduled \$5.2 billion of its \$6.3 billion debt. However, the agreement, signed by 53 of Dome's 54 lenders, was contingent on the success of a planned \$250-million share issue which was to be marketed by October 5. This was not accomplished and in December Dome asked its lenders to release it from the promise to raise \$250 million in new equity because of poor market conditions. At the end of the year, the company was renegotiating a waiver of the equity requirement in the August 1 agreement and some other revisions. In September, the federal government had advised Dome that it would not renew the agreement in principle of 1982 when the government and four Canadian banks put together an emergency bailout package. The agreement was due to expire on October 1, 1984 and Dome had asked that it be extended until its new debt rescheduling plan was completed. The agreement with the federal government lapsed on October 1.

Conservation and
Renewable Energy
Demonstration
Agreements
(CREDAs)
evaluated

In August, an evaluation was made of the Conservation and Renewable Energy Agreements (CREDA) program which had been initiated in 1979. CREDA, a demonstration and information program, was designed to overcome barriers to wider adoption of conservation and renewable energy technologies by directly demonstrating the technical and economic viability of alternatives in practical situations, and communicating the results. CREDAs, or similar agreements, were signed with most provinces. The program introduced new state-of-the art technologies into the commercial setting by developing and expanding new markets for existing technologies and by the selected demonstration of new, developing technologies. The projects proved to be cost-effective in demonstrating

conservation and alternative energy technologies and provided excellent funding leverage in that \$215 million worth of projects were implemented with a federal share of \$40 million. CREDA agreements were closed as of March 31, 1984, with allowance for a one-year wind-down to March 31, 1985. As a result of a Cabinet decision of December 1983, a new national program ENERDEMO-Canada replaced the CREDAs and integrated other energy demonstration programs.

Annapolis
tidal power
project opened

The \$56 million Annapolis Tidal Power Project, the first tidal power project in North America, was opened in August to test the efficiency of the Canadian-built STRAFLO turbine and the feasibility of full-scale tidal power projects in the Bay of Fundy. The Bay of Fundy project began in 1980, following approval in late 1979. It is located at Annapolis Royal, on the lower reaches of the Annapolis River. This pilot plant has a capacity of 50 million kilowatt-hours a year. The STRAFLO turbine, which was developed in Switzerland and manufactured in Montreal, may also be adaptable to low-head river sites in many parts of Canada and abroad. The project is administered by Tidal Power Corporation, a Nova Scotia Crown Corporation, which received a \$25-million federal grant towards the construction of the plant to cover the difference between estimated direct benefits and the total cost of the project.

The benefits
and costs of
oil price
declines

As world oil prices began to decline instead of continuing sharply upwards, as expected in the early 1980s, two opposing viewpoints were being expressed. A New York Times article of early August noted that as oil price cuts were filtering through the world economy, they were reducing inflationary pressures and spurring expansion in the U.S. and abroad. With faster economic expansion foreseen in many nations, the growth in world trade, initially forecast by the International Monetary Fund at 5 per cent for 1984, was now expected to increase by almost 8 per cent. The oil price shocks of the 1970s ignited rampant inflation and intensified the global economic decline of 1981-83, the worst downturn since the depression of the early 1930s. The softening in the world oil price structure was, accordingly, seen as a very favourable development. The opposite view was being expressed by some spokesmen for the investment community who pointed to the risk factor in declining oil prices which could reverse conservation initiatives and retard energy resource development projects. "What we don't want to do is get back on the rollercoaster".

P.C. government
elected

On September 4, a Progressive Conservative government was elected and during the remaining months of the year many changes in federal energy policy were initiated.

NEB Energy Supply
and Demand
Report,
1983-2005

In September, the National Energy Board published its report, "Canadian Energy Supply and Demand 1983-2005". The report updated an earlier study published by the Board in mid-1981. The Board's first major energy forecast was published in 1969. The new study reflected changing perceptions of future energy prices, economic activity, the availability of energy supplies, and changes in government

policies. The report warned of a great deal of uncertainty about the future domestic supply of crude oil because of a number of unknown elements related to the development of frontier areas and the oil sands. It emphasized the importance of examining separately the balances for light and heavy crude oil. The Board's projected world price reflected the view that the world oil market will be characterized by an excess supply for the following four years but, later, world oil demand would increasingly press against productive capacity and real oil prices would rise. World oil prices would remain relatively steady for a few years and then prices would rise at an annual rate of about 2 per cent in excess of the rate of inflation. Total energy demand in Canada was expected to increase at an average annual rate of 1.6 per cent through 2005, compared with about 5 per cent for most of the 1960s and 1970s. Oil demand would decline both in absolute terms and as a percentage of the total energy market, but Canada would still have to import some light crude. Natural gas would take a greater share of the energy market. Electricity demand would increase at almost double the rate of energy demand in general but excess electrical generating capacity would remain into the 1990s, and the industry would become more export-oriented. The share of nuclear power in total electricity production would rise from 11 per cent in 1983 to 22 per cent in 2005. Alternative fuels, such as solar power and waste wood, would remain significant energy sources but their share in the overall energy total would not exceed about 8 per cent.

**Lepreau II
environmental
impact study**

An environmental impact study released in September concluded that the proposed 600-megawatt Lepreau II nuclear power plant could be operated safely and would generate significant economic benefits, including \$1.4 billion in gross domestic product across Canada. However, the report did not address the economic viability of the plant or the effects of the plant's debt on New Brunswick power consumers. Those deficiencies drew criticism from government agencies and private organizations. The study had been commissioned by Maritime Nuclear, a joint Atomic Energy of Canada Limited - N.B. Power Commission venture.

**Manitoba Hydro's
Limestone power
project**

In September, Manitoba Hydro, a provincially-owned utility, announced that tenders would be called immediately for construction of its proposed \$3-billion Limestone generating station. The Limestone dam project had been mothballed in 1977 but a \$3.2-billion power sale to Northern State Power Co. of Minneapolis earlier in 1984, if approved, would bring the project on stream one year before it was needed for domestic power needs. Manitoba Hydro had filed an application with the National Energy Board in August for a licence to export firm power and energy over a 12-year period to Northern States Power. The public hearing was completed on November 16 and a decision was expected in early 1985. Manitoba Hydro was proposing to export a maximum of 500 MW of firm power and up to 4,392 kWh of energy in each 12-month period from May 1, 1993 through to April 30, 2005, using existing power lines with the power and energy exports coming from the Limestone project. Manitoba is interconnected with electrical systems in North Dakota and Minnesota via two 230 kV lines

- one to Grand Forks and the other to Duluth - and a 500 kV line to Minneapolis, and in 1984 it held three licences to export firm energy and two licences to export interruptible energy. In the event of approval of the Limestone project, Manitoba Hydro's total electrical export revenue would increase from \$89 million in 1984 to about \$400 million in 1993.

The frailties
of forecasting
- Ontario Hydro

In September, Ontario Hydro stated that the province could face power shortages by the mid-1990s and initiated a study to investigate how the utility could best deal with customer demand patterns that were getting more difficult to predict. The prediction of a shortage by as early as 1992 was in sharp contrast to forecasts in the 1970s that had led to cancellation of some projects, postponement of others and the mothballing of power plants. The over-building in the 1970s and the concerns over shortages in the 1990s were being attributed by some observers to the "frailties of forecasting".

Beaufort Sea
Environmental
Assessment
Report

In September, there was further comment on the Beaufort Sea Environmental Assessment Panel Report which had been released at the end of July, four years after an industry proposal for hydrocarbon development in the Beaufort Sea-Mackenzie Delta region had been submitted to the Minister of Indian Affairs and Northern Development. Dome Petroleum Limited, Esso Resources Canada Limited and Gulf Canada Inc. had proposed a two-phase development plan for the region, involving the confirmation and development of commercial reservoirs of oil and construction of an oil transporting system in Phase I, and production activities from 1987 onward for Phase II. The Panel had been directed to "identify major developmental effects, both positive and negative, upon the physical, biological and human environments and recommend ways and means of dealing with them". The Panel made 83 recommendations to the Ministers of Indian and Northern Affairs, and the Environment and, in particular, stated that "upon application, only small scale production and transportation of oil and gas resources from the Beaufort Sea region be authorized". The overall tone of the report was one of cautious advocacy of hydrocarbon development in the Beaufort. Development could take place without unacceptable environmental and socio-economic impacts provided that the development was small-scale and was phased in at a pace which could be controlled by northern residents. The report was favourably received, with the Canadian Petroleum Association noting that it fit the industry's scaled-down projections for Beaufort-Mackenzie Delta development.

World Court
decision on
Georges Bank
Canada/U.S.
dispute

On October 12, a Chamber of the International Court of Justice in the Hague issued its decision in the case between Canada and the U.S. concerning the Maritime boundary in the Gulf of Maine, confirming Canadian jurisdiction over a substantial part of Georges Bank which contains major fishery resources and potential hydrocarbon resources. The dispute had begun in 1969 when the U.S. protested Canada's issuance of oil and gas exploration permits on Georges Bank. The dispute expanded in scope in 1976 when the two countries unilaterally extended their fisheries jurisdiction to 200 nautical miles. In 1979, the

two governments signed a Treaty to submit to Binding Dispute Settlement the Delineation of the Maritimes Boundary in the Gulf of Maine area. The U.S. boundary proposal would have given the U.S. total jurisdiction over Georges Bank, while Canada was asking for one half the disputed area. While the ruling only gave Canada about one-sixth of the Georges Bank, it left Nova Scotia fishermen with enough territory to maintain a viable fisheries industry. Moreover, the boundary line drawn by the Court left Canada almost all of the western part of the Scotian Basin. The main hydrocarbon potential of the eastern part of Georges Bank is associated with the area retained by Canada.

Syncrude oil sands expansion

In October, the Alberta Energy Resources Conservation Board announced approval of a plan to expand production at the Syncrude Canada Ltd. oil sands plant near Fort McMurray. Annual synthetic crude oil production would rise to 8 million cubic metres from 7.5 million cubic metres and the enlarged plant would also produce 370,000 cubic metres a year of naphtha. The \$600-million expansion was to be part of a 5-year, \$1.2 billion proposal to improve and expand production at the Syncrude Mildred Lake plant.

Uranium resource appraisal shows large surplus available for export

In October, EMR issued its interim-year Uranium Resource Appraisal Group (URAG) assessment. Compared with the 1982 resource assessment, there was a 22 per cent increase in Indicated resources by the end of 1983 in contrast to the 10 and 7 per cent decreases in the Measured and Inferred resource categories, respectively. The major increase in the Indicated category reflected the favourable results of continued exploration and development work in the uranium areas of northern Saskatchewan. The sum of Measured, Indicated and Inferred resources, within all three price categories, was 591,000 tonnes U, slightly higher than the 1980 estimate despite production of 23,000 tU in the intervening three-year period. Recoverable reserves at the end of 1983 were 237,000 tU, for which there were domestic commitments of 80,000 tU, leaving an available surplus of 152,000 tU with 67,000 tU of this having been committed to export markets. The Canadian uranium industry continued to be characterized by a very large potential resource capacity.

Outlook for N.E. B.C. coal

In October, Tech Corp. one of the two new coal producers in northeast B.C., agreed to a \$10 reduction in the price of a tonne of coal from its Bullmoose mine after extensive negotiations with its Japanese buyers. The new price of \$88 per tonne, retroactive to April 1, 1984, would apply for a two-year contract period. The Quintette mine, which had completed a contract with Japanese buyers in 1981 at \$97 a tonne, was also having to renegotiate its price, with the current world price being only \$69. In addition, this new mine was having start-up problems and there were forecasts that its 1985 production might only be three million tonnes, well short of its target. Notwithstanding price and production problems confronting the new northeast B.C. coal producers in 1984, the Chase Manhattan Bank of N.Y. had predicted in January that, while the new coal area would develop a capacity far in excess of demand until the

end of the decade, during the 1990s Canada would have a seller's market because of the growing world demand for coal, particularly in the Pacific Rim countries. Much of Canada's coal export growth would be at the expense of U.S. coal which would suffer from an erosion in its foreign markets, according to the U.S. bank forecast.

**OPEC oil price
under downward
pressure**

On October 18, Nigeria reduced the price of its oil by \$2 a barrel to \$28, becoming the first OPEC member to break the official price structure set 18 months earlier. The Nigerian action followed the October 17 price cut by Britain for North Sea oil. The same sequence of cuts prompted the March 1983 slide in world oil prices when the OPEC official price was cut 15 per cent. A continuing price declining in the spot market and persistent over-production by OPEC producers was creating downward pressure on oil prices. Notwithstanding this trend, OPEC continued to hold to the \$US 29 a barrel price level through the remaining months of the year although Nigeria and Algeria continued to defy OPEC pricing policy, particularly in relation to price differentials between heavy and light crudes. By the end of 1984, a definite downward trend was in process.

**Scotia Coal
Synfuels project**

In October, the federal and Nova Scotia governments provided \$750,000 to the Scotia Coal Synfuels project to finance further tests of the feasibility of producing synthetic crude oil from Cape Breton coal and low-grade oil. Tests had produced about 3 1/2 barrels of synthetic oil from a tonne of coal - 5 barrels per tonne being the benchmark for commercial viability. If that level was reached, the next step would be construction of a plant at the site of Gulf Canada's mothballed oil refinery at Point Tupper.

**Oil and gas price
deregulation
planned**

On October 29, announcement was made that the Amending Agreement of June 30, 1983 between the federal and Alberta governments on energy pricing and taxation would be extended one month beyond the termination date of December 31, 1984 to give the new federal government more time to prepare for major price and other policy changes. Since the mid-year, there had been a preference in both major political parties for market-based rather than administered prices. By the time the new government directed particular attention to oil pricing in the fall of 1984, there was a considerable degree of concurrence in Canada on the main issues. Discussions among Energy Ministers were held in October and it became evident that market pricing was the mutual goal. In an address given on October 28, the new Minister of Energy, Mines and Resources highlighted the benefits of deregulated oil and gas pricing, and indicated that the federal government would take the lead in building a consensus among governments, producers and consumers on the concept of market sensitive natural gas pricing. A commitment was also made to ensure that Canadian consumers would never pay more for their natural gas than their American neighbours.

**Business Council
on National
Issues report
on energy**

In October, the Business Council on National Issues (BCNI) released its policy proposals for oil and gas, based on two "Energy Summits" held on November 6-7, 1983 and on June 4-5, 1984. BCNI, composed of chief executive officers

of 150 leading Canadian Corporations, had been formed in 1976 to contribute to the development of public policy and to the shaping of national priorities. Both of the Energy Summits were attended by the Premiers of Ontario and Alberta. BCNI recommended three broad directions for energy policy: deregulation of oil and natural gas pricing; restructuring and lowering of taxes and royalties; and an improved balance between Canadian participation and foreign investment. Crude oil prices would be negotiated between producers and refiners, and natural gas prices would be decoupled from crude oil prices. Resource taxation would be based on profits instead of revenues, and exploration and development incentives, if necessary, would be based on a profits tax system rather than on grants. This would mean the elimination of the Petroleum and Gas Revenue Tax (PGRT) and the Canadian Ownership Special Charge (COSC) among other changes. The 25 per cent back-in provision for the Crown on Crown lands would be eliminated and the Petroleum Incentive Program (PIP) would be allowed to expire. Higher than 50 per cent foreign equity participation in future oil and gas development on Canada Lands would be permitted, provided "best efforts" had been made. Many of these recommendations were among those subsequently implemented by the new federal government.

**Northern oil and
gas exploration
since 1919**

In an October 25 address, the Administrator of the Canada Oil and Gas Lands Administration (COGLA) reviewed and appraised oil and gas developments in northern Canada. Since the first well was spudded at Norman Wells in 1919, about 1150 wells - most of them in the Mackenzie River valley - had been drilled in northern regions, resulting in 74 significant discoveries of oil and gas. Exploration costs, including geophysical surveys and drilling, had amounted to about \$6.5 billion, 60 per cent of which had been spent for exploration in the Mackenzie-Beaufort region. In recent years, Esso, Gulf and Dome had drilled 187 wells in the Mackenzie-Beaufort region at a cost of \$4 billion. Benefits to Canada of northern exploration programs were indicated from 1984 estimates of total expenditures of \$850 million, of which \$660 million, or 77 per cent, was invested in Canada.

**Negotiated gas
export prices
initiated -
abolish NEP
provisions**

On November 1, the federal government approved natural gas export licence amendments to allow six Canadian companies to export gas to U.S. buyers at negotiated prices which was expected to result in exports of an additional 11.3 billion cubic metres of gas (400 bcf), earning \$US 1 billion more in export revenue than would have been possible under government-prescribed export prices. This marked the beginning of a new era in Canada-U.S. natural gas trade and it was hoped that competitive export prices would help Canada regain export sales lost in the previous several years. The average negotiated prices were in the \$U.S. 3.25-\$3.35/MMBtu range, comparing favourably with the Eastern zone price (\$Cdn. 4.15/MMBtu or \$U.S. 3.15/MMBtu) as available to Canadian consumers. In December the federal government approved natural gas export licence amendments for three more companies.

**Speech from
the Throne**

In the Speech from the Throne, on November 5, marking the opening of the thirty-third Parliament, the new government announced that it would launch a "new era of

national reconciliation, economic renewal and social justice"; simplify the taxation system; convene a national economic summit; and continue to improve relations with the U.S. and internationally.

Economic and
Fiscal Statement
- changes in
energy policy
instruments

On November 8, the Minister of Finance delivered his inaugural Economic and Fiscal Statement, aimed at reducing the federal deficit by \$4.2 billion in the 1985-86 fiscal year. In order to achieve that goal, some major changes were announced relative to a number of established government programs, and to fiscal measures including those affecting Canada's energy sector. The intention was to adopt a less interventionist approach to government and, in this direction, the Economic Statement highlighted actions that would reduce federal energy expenditures, regulations, and direct Crown involvement in the national energy economy. With regard to pricing, the domestic price of oil and gas would be no longer set administratively but, rather, would be based on market forces, although a "safety valve" would be put in place to deal with any major price shocks. There would be consultation with the provinces and industry on a more market-responsive system for domestic natural gas sales. In an attempt to reduce federal expenditures on energy demand and supply programs - which amounted to \$3.5 billion in 1983-84 - a number of established policy instruments were to be modified or abandoned, as detailed in the following note, and this was expected to result in a \$613.4 million saving in EMR expenditures alone in fiscal 1985-86. Publications released with the Finance Minister's Economic and Fiscal Statement included: "A New Direction for Canada: An Agenda for Economic Recovery"; and the President of the Treasury Board's "Expenditure and Program Review", which detailed federal program reductions and modifications.

Energy program
changes and
terminations -
the end of
the NEP

In the Economic and Fiscal Statement announced on November 8, and in a statement by the Minister of Energy, Mines and Resources on November 9, detail was provided concerning the changes and abandonments of energy programs, most of which had been implemented in October 1980 with the announcement of the National Energy Program (NEP). The statements gave notice of the following intentions:

"The Petroleum Incentives Program (PIP), the cash grant program introduced in 1980 to encourage exploration activity in the frontier, and to provide assistance on the preferential basis to Canadian-owned firms, will undergo a comprehensive review, after which a decision will be made about what incentives -- if any -- should replace PIP. In the interim, the Program's spending levels for 1985-86 will be reduced by \$250-million from currently approved reference levels of \$1.8-billion. The Canada Lands regime -- including the PIP 25% Crown share incentive -- will also be closely reviewed by the federal government.

"To offset the \$1-billion in the Petroleum Compensation Account, which subsidizes crude oil imports to achieve a Canadian blended oil price, the compensation charge on oil has been increased by 1.8¢ per litre at the refinery gate. This will result in Canadian consumers paying the world price for oil. A short exemption period from this price

increase has been provided to farmers, fishermen, loggers and mine operators, who will be eligible for the fuel tax relief until oil prices are decontrolled. The petrochemical industry will also be exempted from payment of this price increase.

"In view of the major changes in the energy price outlook and the need for more appropriate investment incentives, a comprehensive study of current federal energy taxation has been scheduled. Announcement has been made of changes to the Petroleum and Gas Revenue Tax. The federal government has extended for one year the lower rate of PGRT that applies to integrated oil sands projects, and will double the threshold level of the small producers' credit from \$250,000 to \$500,000 effective January 1, 1985. A Ways and Means motion to formalize this action until appropriate legislation can be passed in Parliament, was introduced on November 8. Major changes will also be made to the fiscal regime regulating oil sands production, to expedite development of that important source.

"The Canada Oil Substitution Program will be terminated on March 31, 1985, effecting a savings of \$95-million in 1985-86. (COSP was to have ended in December 1990.)

"The rate of federal contribution for grants under the Canadian Home Insulation Program will be reduced from 60% to 33 1/3% by the end of 1984, and the program itself will be terminated on March 31, 1986, resulting in an \$84-million savings in 1985-86.

"The federal government has deferred new commitments under the Natural Gas Laterals Program, which was designed to support the construction of lateral pipelines off the main TQM gas line from Montreal to Quebec City (\$85-million saving).

"As a result of TQM extension deferrals, Maritime Engineering, a program designed to perform engineering work for the Maritime leg of the gas pipeline, has been cancelled, at an \$8-million savings.

"Canertech, the Petro-Canada subsidiary concerned with investing in conservation and renewable energy projects, will wind-down, and its assets sold (\$30.6-million).

"The interdepartmental Energy Research and Development Program will be reduced by \$60.8-million during 1985-86.

"Plans to establish an Institute of Electrochemistry at Shawinigan, P.Q. will not proceed.

"Approximately \$8-million will be cut from the budget of the Northern Oil and Gas Action Plan, which provides funding to a number of federal departments to accelerate studies in connection with Northern oil and gas production."

The government also announced that it would provide no equity to Petro-Canada in 1985. A figure of \$275 million had been earmarked by the former administration.

CHIP and COSP
total grant
payments

The November 9 statement of the Minister of Energy, Mines and Resources noted that over its seven years of existence, the Canadian Home Insulation Program (CHIP) had paid \$775 million in grants, generally \$500 per household. Canadian Oil Substitution Program (COSP) grants since the inauguration of the program in June, 1981 had aggregated almost \$500 million, with grants of up to \$800 being paid. More than 890,000 residential units had been converted from oil, resulting in an oil displacement of 6,100 m³/day (28,400 bbls/day). The focus of government activity in support of residential energy conservation would now shift from direct incentives to consumer education, industry support, and the demonstration activities in cooperation with the private sector and provincial utilities.

Auditor General
seeking
Petrofina
acquisition
documents
through the
Federal Court

In November, the Auditor General announced that he would proceed with his case before the Federal Court of Canada in an attempt to gain access to federal records pertaining to Petro-Canada's purchase of Petrofina. He had launched his action in the Court in July after the former government had rejected his bid for access to government files regarding the acquisition. In his annual report, tabled in Parliament on December 12, the Auditor General warned that his ability to act as Parliament's watchdog over government spending was imperilled by the refusal of some departments and agencies, not only Petro-Canada, to provide him access to information. In a statement in mid-December, the former Chairman of Petro-Canada claimed the acquisition had been a good deal, based on a policy decision to get into refining and marketing. "If you look at the alternative ways of implementing that decision, there's no question that the Fina acquisition was cost effective".

B.C. coast
exploration
plans -
Petro-Canada
withdraws

In November, Petro-Canada withdrew from an inquiry into the resumption of oil and gas exploration off B.C.'s coast. It withdrew following the federal-B.C. environmental inquiry's request to interested companies, and various government departments and agencies, for additional information about exploration procedures, environmental impact, and contingency plans to handle emergencies. The company had already spent about \$1 million to produce the initial environmental evaluation and considered the additional requirements too onerous.

Canada-N.S.
Development
Fund
Agreement

On November 21, the federal and Nova Scotia governments announced the signing of the Canada-Nova Scotia Development Fund Agreement and the approval of the first four projects under the Agreement. It provided for up to \$200 million to help fund projects to create an infrastructure enabling the development of the petroleum resources off the coast of Nova Scotia. The Development Fund was part of the Canada-Nova Scotia Agreement on Offshore Oil and Gas Resource Management and Revenue Sharing signed in March 1982. The Fund was confirmed in legislation passed by Parliament and the Nova Scotia Legislature in June 1984.

Vancouver Island
gas pipeline
dependent on
federal subsidy

In November, the Minister of EMR asked the B.C. government to develop a new proposal for funding of the Vancouver Island gas pipeline. B.C. had asked the federal government for \$528 million over 20 years to cover the

capital costs and anticipated operating deficits of the proposed 74 km link from Roberts Bank, south of Vancouver, to Cedar on Vancouver Island. In July, the B.C. government approved a proposal of the B.C. Hydro and Power Authority to build the line provided the federal government guaranteed a subsidy over 20 years.

Cold Lake heavy oil project

In November, Esso Resources Canada Ltd. accelerated the work on its Cold Lake heavy oil project and budgetted an additional \$225 million for it. The first two phases of the project were scheduled for completion in mid-1985 and two more early in 1986, each pair producing 18,500 barrels of oil a day. All six phases, with a total capacity of about 56,000 b/d, were scheduled for completion by 1988.

Petroleum Compensation Account deficit

In November, the 1983-84 annual report of the Petroleum Compensation Board became available and showed a deficit in the Petroleum Compensation Account (PCA) at the end of March 1984 of \$482 million, with the deficit expected to reach \$1 billion by the end of 1984. Volumes of oil eligible for New Oil Reference Price (NORP) payments had been increasing beyond expectation and the decline of the Canadian dollar from 80 cents early in January to 74.9 cents in mid-July, which was the most important factor, were creating major problems. Other factors also contributed to the deficit including the fact that there was a net cost to the PCA even when new oil backed out imported oil because the average NORP compensation \$10-\$12/bbl was greater than the flat-rate compensation (\$6-\$8/bbl). In the November 8 Economic Statement, the federal government increased the Petroleum Compensation Charge by the equivalent of 1.8 cents/litre to arrest the growing PCA deficit and began looking for sources of revenue to offset it.

C.D. Howe report: Canada's Energy Policy

In November, the C.D. Howe Institute published a report in which it recommended the adoption of world oil prices and the development of a new national energy program. However, it cautioned against complete deregulation. The Institute claimed that the 1980 NEP was a failure because it was based on an expected increase in world oil prices. A new energy program should be designed to anticipate upheavals in the world price and supply of oil. The adoption of world prices would prompt market adjustments to changes in price and supply without bureaucratic intervention, as the public would probably cut consumption as prices rose and use energy more efficiently. Included in the report, "Canada's Energy Policy, 1985 and Beyond", were six other papers in addition to the C.D. Howe overview paper: The International Context (M.A. Adelman); Canadian Energy Policy after 1985: Lessons from the Past (L. Waverman); Energy Revenue Sharing (B.W. Wilkinson); Managing Canadian Energy Demand and Supply (R.G. Wirick); Financing Energy Development, 1985 and Beyond (J. Grant); and Energy Issues in a Public Policy Context (T. Kierans).

U.S. electricity imports from Canada a best alternative

At a meeting in November of the International Association of Economists in San Francisco, purchase of electric power from Canada was recommended as a better alternative than expansion of power generation facilities

within the U.S. in view of the significant change underway in the energy economy of that country. As a result of increasing electricity rates in the U.S., large amounts of energy were being "released" from the industrial sector through the decline of electricity-intensive industries - steel and aluminum, etc. The electricity supply "bubble" may last well into the next decade. As inter-regional access to gas and electrical transmission facilities is increased, the definition of responsibility for assuring future supply will become diffuse and unclear. With consumers providing little or no assurance of takes, utilities will be reluctant to make the investments necessary to assure long-term supply. Consequently, utilities should recognize that the risk of extended capital investment far exceeds its reward. Utilities must seek solutions for long-term energy supply other than through construction of large central generating plants. In this regard, the conclusion was that purchase of power from Canada makes eminent good sense.

Mesures to assist
oil sands
projects -
Suncor and
Dome Lindbergh

In December, the federal government announced that, effective January 1, 1985, the Incremental Oil Revenue Tax (IORT) on production from Suncor's Fort McMurray oil sands plant would be eliminated in order to facilitate the Company's planned \$500 million project to improve productive capacity and reliability. That project would increase the plant's daily productive capacity by 6,500 barrels (1,030 M³) of synthetic crude oil and gas liquids. For the Dome Lindbergh \$300 million oil sands project, 65 km northwest of Lloydminster, the federal government offered to facilitate construction by applying Petroleum and Gas Revenue Tax relief and earned depletion, approving any crude oil export licences recommended by the National Energy Board, and giving the project's production the New Oil Reference Price (NORP). The Lindbergh project was designed to produce 2,380 m³ (15,000 bbls) per day of crude oil.

Cooperative
Energy
Development
Corp (Co-Enerco)

In December, Co-Enerco announced it had successfully completed the sale to the public of 1.7 million Class A shares at \$7.00 per share. The Canadian/Cooperative Energy Investment Agreement was signed between a group of co-operatives and credit unions (17 in total) and the Government of Canada in December 1981, and Co-Energy was formed with a mandate to explore for and develop oil and gas and other energy sources to thereby contribute to the goals of security of supply and Canadian ownership of the petroleum industry. The Cooperative Energy Act was enacted by Parliament on July 9, 1982. Co-Enerco purchased the assets of Sabine Corporation of Dallas in September 1982 for \$103 million, a producing operation which provided Co-Enerco with reasonable cashflow. Co-Enerco continued to explore and in 1983 participated in 29 successful oil wells and 6 gas wells. The federal government invested \$58 million in the company in its early stages of incorporation.

Ocean Drilling
Program

In December, the federal government announced that Canada would participate with the U.S. National Science Foundation in a 9-year international Ocean Drilling Program. It would be a multi-disciplinary scientific

research program to gather information on the geology of the deep ocean and continental margins. Participation in the ODP would provide access to information important to offshore oil and gas exploration and it would also improve knowledge of mineral-deposit formations on the seafloor. Canada committed \$15 million to the program for its first four years. Germany, France and Japan also announced their intention to participate in the ODP. Of particular importance to Canada, with the longest coastline in the world, is the need to acquire advanced geoscience information about its continental shelf. Support for establishing Canada's offshore boundary, where the continental shelf extends beyond 200 miles, will rely heavily upon this information.

**Polar Continental Shelf Project
1984 field season**

An assessment completed in December of the Polar Continental Shelf Project (PCSP) 1984 field season showed that Arctic research is continuing to increase, with the 210 scientific field parties in the field being the greatest number since the PCSP was established in December 1958. In 1984, several significant discoveries were made as part of the geophysical, hydrographic, geological and other program activities. A canister was found in a cairn on the west coast of Brodeur Peninsula left by W.E. Parry in 1819. Several geological discoveries were made to further confirm that the Canadian Arctic at one time was tropical in nature and that there was a land bridge between North America and Europe. The exhumation of the body of John Torrington, a sailor who died on the Franklin voyage to discover the Northwest Passage and was buried on January 4, 1846, and pathological studies on the fully preserved body which had been buried in permafrost, provided important medical findings about the level of carcinogens in the population in the mid-1800s. As in past PCSP field seasons, the geological and geophysical research contributed to an increased knowledge of the oil and gas resource potential of the Arctic region.

Canada Lands oil and gas exploration in 1984

Results of the 1984 oil and gas exploration program in Canada Lands, as examined in December, indicated that 11 significant discoveries had been made in the drilling of 43 exploratory wells - 2 oil discoveries, 3 oil and gas discoveries, and 6 of gas or gas condensate. The program also included 10 delineation wells. It was concluded that follow-up drilling would be required to determine the commercial potential of the fields. In the Mackenzie-Beaufort Sea region, 10 exploratory wells were completed resulting in 4 discoveries - 1 of oil, 1 of oil and gas, and 2 of gas. The other 1984 discoveries were made in the Atlantic Offshore.

Electricity surplus capacity - increasing interest in exports

Although there was a major growth in electricity demand in 1984, the conclusion in December was that Canada would continue to have a substantial electricity generation surplus capacity, and in most provinces, except Manitoba, generation expansion plans were being set aside. The Hat Creek coal-fueled station and the Site C hydro station in B.C. had been indefinitely postponed. In Alberta, the Slave River hydro site studies had been delayed and coal-fueled generation under construction at Sheerness had its in-service dates postponed. Ontario had

announced no plans after the Darlington nuclear plant, and had mothballed a number of oil and coal-fired units surplus to existing needs. Hydro Québec had postponed the commitment of new generation in the James Bay area. Export marketing efforts were being intensified, with increasing interest being shown in B.C., Manitoba, Ontario, Quebec, and New Brunswick in longer term firm contracts in place of the interruptible or short-term contracts governing most of the export sales. Nearly all sales were from plants built to supply Canadian customers in the context of the higher demand forecasts of the mid-1970 which did not materialize.

Canadian coal supply and demand - major increases in 1984

Coal supply and demand data for 1984 available in December showed that the year's production was up 27 per cent from 1983 to 57 million tonnes; domestic coal utilization reached 50 million tonnes, up 13 per cent; exports increased by an unprecedented 48 per cent to 25.2 million tonnes, up 27 per cent from 1983. The production and export increases were primarily the result of the first full year of production for five new coking coal mines in B.C. including the two large operations in northeast B.C., and a new thermal coal mine in Alberta also contributed to the production increase. The increase in imports, and in domestic consumption, was due in considerable part to Ontario's increased imports and greater use as a result of the Pickering nuclear station shutdown.

Natural gas in Quebec - expansion financed by federal programs, NGLP, DSEP, GMAP

In December, a new natural gas pipeline, funded by the federal government in an amount of \$175 million, was completed over a 333 km route between Grand-Mère and La Baie in Quebec to connect the Saguenay - Lac Saint-Jean region with the province's natural gas network. The project was financed by the federal Natural Gas Laterals Program, established in 1982, which paid the total cost of all laterals built in Quebec in the period 1982-85, including those to Trois-Rivières, Shawinigan, Grand-Mère and Béancour, as well as Sherbrooke and other centres in the Eastern Townships. Within these towns and cities, the federal government's Distribution System Expansion Program (DSEP) and Gas Marketing Assistance Program (GMAP) assisted gas distributors to extend their services.

Domestic Transfer Compensation Program extended to 31/6/85

In a federal government decision taken in December, the Domestic Transfer Compensation Program, introduced in July 1982 and assessed semi-annually, was again extended six months, this time to June 30, 1985. From July 1982 to October 1984, about \$97 million had been paid by the federal government to subsidize the transportation of crude oil east of Montreal to Quebec City, St. John and Halifax as part of an overall effort to utilize Canadian crude oil more fully. Since the start of the program, the displacement of foreign crude oil imports had resulted in a reduction in oil import compensation expenditures of \$282 million.

Northern Pipeline Agency closing down - no prospects for Alaska Pipeline,

In December, the Northern Pipeline Agency (NPA) released its report for the fiscal year ending March 31, 1984. The NPA was established with the proclamation of the Northern Pipeline Act on April 13, 1978, for the purpose of overseeing the planning and construction of the Canadian

Northern
Pipeline Agency
closing down -
no prospects for
Alaska Pipeline,
and "pre-build"
under-utilized

portion of the Alaska Highway Gas Pipeline to provide access to the substantial Arctic natural gas reserves of both Canada and the United States. In addition to creating the Agency, the Act provided the legislative authority to implement the bilateral agreement of September 20, 1977, (between the two nations) which governs the joint undertaking of the 9,000-km (5,500-mile) system. The NPA was established to provide a "single window" for the conduct of virtually all dealings at the federal level with the Foothills Group of companies, which was authorized under the Act to undertake the project in Canada. In 1980, Canada and U.S. authorities approved the early construction of the Western and Eastern Legs - the "pre-build" - of the Alaska Highway Gas Pipeline Project. The NPA 1983-84 Annual Report notes that the pre-build sections operated substantially below authorized volumes of some 32.1 million cubic metres (1.14 billion cubic feet) of gas a day and explains this in terms of the substantial drop in natural gas demand in the U.S. resulting from such factors as economic recession, conservation, a series of mild winters, and competition from residual oil and electricity, as well as a significant surplus of gas supplies from U.S. sources in response to increased wellhead prices. Planning for the section of the Alaska Pipeline from Prudhoe Bay, Alaska, to join with the pre-build section proceeded at a much reduced pace in 1983-84 because of poor market prospects and incomplete financing. By 1984, the NPA had reduced its staff to 15 from a peak of 100 in 1982 and closed its Vancouver and Whitehorse regional offices, with little prospect of Alaska Pipeline activity in the foreseeable future.

The rationale for
frontier oil
exploration
expenditures

At the December 6 meeting of the Parliamentary Public Accounts Committee, which was examining energy program expenditures, a question was raised as to why taxpayers' money, in the form of Petroleum Incentives Program (PIP) payments, was being spent on frontier exploration when Canada had large reserves in the oil sands and heavy oil areas. The response pointed to the fact that the amount of oil being discovered in the traditional areas of western Canada will be smaller in the future than the amount of oil used in the country, with the proportion of supply to demand declining from 100 per cent in 1970 to about 40 per cent in the year 2000. The cost of producing and upgrading oil from the oil sands and heavy oil areas is likely to remain considerably above the cost of conventional oil although that oil will become more costly as reserves decline. The investments being made by taxpayers to support frontier exploration were directed to determining how economic frontier oil and gas production might, or might not, be in relation to the megaproject expenditures required to bring the oil sands into large-scale production (about three times that of conventional oil production). The rationale for public investment in frontier exploration was thus explained in terms of the importance of acquiring the knowledge that would enable economically sound decisions to be made about which resources areas (oil sands or frontier oil, or both) should be developed and produced in the future to offset the declining conventional production in Alberta and Saskatchewan.

THE YEAR 1985Oil Price
deregulation
negotiations

During January, federal-provincial negotiations towards oil-price deregulation continued and, to permit more time, the Amending Agreement of June 30, 1983, which had been extended to January 31, 1985, was further extended to March 31, 1985. As an interim measure, the federal government agreed to a more flexible system for the pricing of crude oil exported to the United States which, along with changes in the National Energy Board's crude oil nominations and licensing system announced in December, was designed to minimize the need to shut in crude production from Alberta and Saskatchewan oil fields. The need for decontrol was becoming increasingly evident as distortions developed in the Canadian administered pricing system. In January, the blended price for light crude oil in Montreal was about \$29 a barrel; the export price was \$34; the Conventional Old Oil Price was \$30; and the New Oil Reference Price was \$40 while the market price was about \$35 a barrel.

OPEC oil price
decline in 1985

In January, OPEC was still attempting to defend its US\$29 per barrel oil reference price while Norway was abandoning official prices for its North Sea crude in favour of negotiating agreements with its customers. Both Norway and Britain had cut their North Sea prices in October 1984 and Nigeria, an OPEC member, had lowered its price unilaterally forcing OPEC to curb production in a vain attempt to shore up unstable world oil prices. At the end of January, OPEC Oil Ministers agreed to cut their oil prices, with the top-price oil declining from \$30.50 to \$29.90. However, some OPEC members refused to be part of the agreement. In May, Norway reduced its price for North Sea crude by \$1.00 to about \$26.50 and Britain followed in June with a reduction in its price of \$1.25 reflecting steadily falling rates on the European spot market where buyers were offering \$26.20. By November, virtually all 13 members of OPEC were selling oil at prices below official levels and producing as much oil as they chose. On December 10, OPEC Ministers confirmed that the organization was shifting its strategy from one of maintaining a specific price to that of increasing production in an effort to retain one-third of the over-supplied world market. Britain's North Sea price immediately dropped to \$U.S.22 per barrel, and it was generally accepted that the OPEC reference price which was still being posted at \$28 would soon drop to \$20. By July 1986, the spot price had declined to below \$10 per barrel and the average OPEC price for 1986 was \$14 compared with \$27 in 1985 and \$31 in 1980.

Standing Senate
Committee on
Energy --
NEP inquiry

In January, the Standing Senate Committee on Energy and Natural Resources resumed its inquiry into all aspects of the National Energy Program (NEP), including its effects on energy development in Canada. The Committee had opened its investigation in January 1984 but had not met since June. With a renewed authorization, the Committee commenced a series of hearings in Ottawa and Calgary from January to April. Attention was directed to proposals of new pricing and fiscal regimes. Industry witnesses spoke

strongly in favour of a reduced governmental fiscal and regulatory burden, citing the Petroleum and Gas Revenue Tax (PGRT) and provincial royalties as being too onerous, and calling for tax incentives in place of Petroleum Incentives Program (PIP) payments. The Committee was skeptical of some industry claims that a lower fiscal burden would automatically lead to greater oil industry activity and found that most witnesses were not very specific as to the precise measures they wanted to see in a new energy system. Some witnesses supported the demand reduction programs that had been part of the NEP and expressed concerns about the impact of the reduction of conservation, renewable energy and R&D programs. The Senate Committee released an interim report on August 21 after conducting 34 sessions, and hearing from many witnesses including those from government, industry, the academic community, and public interest groups. The report included recommendations concerning the petroleum industry and concerning the national interest. The Committee supported deregulation of crude oil prices; market sensitive pricing for natural gas; phasing out of all transportation subsidies; a phased withdrawal of the PGRT and the PIP; special incentives for both petroleum exploration and development of Canada Lands to encourage Canadian participants; and the continuation of the 50 per cent Canadian participation requirement on the Canada Lands. In matters concerned with the national interest, the Committee recommended that the federal government's energy conservation and oil substitution efforts be expanded; that alternative energy R&D be maintained to enhance the leading position that Canada had achieved in this field; that an interim floor price for oil sands and enhanced oil recovery production be maintained; and that there be interim protection for consumers against a sudden large increase in the price of oil.

**Quebec endorses
oil price
deregulation**

In January, the Quebec Energy Minister announced endorsement of oil price deregulation and flexible natural gas pricing. "The cumbersome social and bureaucratic policies that have been in place since 1973 should be abolished."

**Environmental
Studies
Revolving Funds
- Canada Lands**

In January, the 1984 annual report of the Environmental Studies Revolving Funds - ESRF (EMR) and ESRF (IAND) was issued, covering activities since the Funds were established in mid-1983 under Section 49 of the Canada Oil and Gas Act for environmental and social studies. The Funds were set up to address issues necessary for decision-making relating to petroleum exploration and development on Canada Lands. The revenue for the program was to come from the interest owners on these lands while the administration was to be done by the federal government (COGLA for EMR and the Northern Affairs Program for IAND). To the end of 1984, 18 studies had been completed covering a broad range of subject areas including oil spill research, icebergs, ice scour, waves, and social issues. The studies were of three basic types: scoping studies, laboratory work and field studies. Study commitments to the end of 1984 were budgeted at a total of \$8.9 million.

Canada-U.S.A.
Energy
Consultative
Mechanism

In January, a meeting of the Canada-U.S. Energy Consultative Mechanism was held and, as in the case of past meetings, covered a broad range of bilateral energy issues. For Canada, the emphasis was on securing and maintaining access to U.S. markets. For the U.S., the balance was between its free market philosophy, and prevailing protectionist attitudes in the U.S. The emphasis in the discussion was on crude oil and petroleum product trade and trends in the refining and petrochemical industry. As Canada moved to freer trade in oil, the abandonment of export controls was raising concerns about access to competitive feedstock for central Canadian refiners due to U.S. oil export controls. The U.S. side agreed to review the discretion available to the Administration in U.S. legislation controlling exports in order to address the Canadian concern. Both sides agreed to study difficulties confronting their refining and petrochemical industries. With the beginning of new terms of office at the federal level in both countries, there was a desire to promote amiable bilateral relations in the energy economy.

Task Force on
use of western
Canada coal
in Ontario

In January, the Task Force on Expanded Use of Low Sulphur Western Canadian Coal in Ontario was formed, chaired by Environment Canada with representation from EMR, Transport Canada, and the Ministries of Environment for Alberta, B.C., Ontario and Saskatchewan. The mandate of the Task Force's work was to focus on Ontario Hydro's use of low sulphur thermal coal from western Canada, in place of U.S. imports, as this would provide a major market outlet for Canadian coal while offering the opportunity for significant reduction in acid gas emissions. Appointment of the Task Force had been preceded by a United Mine Workers study in 1983 which outlined employment benefits through the greater use of western Canada coal in Ontario, and an Alberta-Ontario study in 1984 which had examined the potential for the expanded use of western coal in Ontario. Ontario Hydro had decided to diversify into the use of higher-priced western Canadian coal as early as 1970 and, because of coal quality constraints, to blend it with U.S. coals. The main constraint to greater Canadian coal use had always related to the long transportation distances resulting in a price premium in comparison with the delivered price of U.S. coal to Ontario Hydro's Nanticoke generating station. In early 1985, the premium was \$21/tonne (\$69/tonne for U.S. coal versus \$90/tonne for Canadian coal). The Task Force examined alternatives for coal supply in terms of flue gas desulphurization (FGD) alone, a combination of low sulphur western coal and FGD, and western Canadian coal alone. It completed its report at the end of the year. (See note for December).

World Energy
Conference
studies

The World Energy Conference (WEC), a private international organization devoted to promoting a non-partisan exchange of information and views among energy experts to further the peaceful development of world energy resources, maintains a continuing program of studies on a broad range of energy topics. The Department of Energy, Mines and Resources, along with provincial government agencies and companies, provide annual financial contributions to support the activities of the Canadian National Committee of the WEC (CANWEC), which is an active

member of this international energy organization. In January, the WEC International Executive Council, meeting in Algeria, provided an overview of studies then underway. They were representative of the ongoing work of the WEC and included a number of projects of the Conservation Commission concerned with the long-term outlook for energy supply and use, and such other special studies as those directed to energy consumption in industrial processes, the growing role of electricity in the energy spectrum, acid rain deposition, methanol from coal, and energy terminology.

**St. Pierre and
Miquelon
boundary dispute**

At a Canada-France meeting held on January 10 in Paris, the two countries failed to reach an agreement on the long-standing territorial dispute over the waters surrounding the two small islands of St. Pierre and Miquelon off the south coast of Newfoundland. France claims an economic zone of 200 miles around the islands while Canada maintains that, under international law, the islands are entitled to only the 12-mile territorial sea.

**Benefits to
Ontario of
nuclear power**

In January, the chairman of Ontario Hydro forecast that, by the late 1980s and the 1990s, when all nuclear plants under construction in the early 1980s were completed, they will save Ontario \$1 billion a year over the alternative costs of coal. Ontario Hydro's commitment to nuclear power in the 1970s will then start paying off in a development that has been of immense economic importance to Ontario.

**CANMET
Hydrocracking
Process being
tested at
Petro-Canada
refinery**

The CANMET Hydrocracking Process was developed to upgrade Western Canadian oil sands bitumen and heavy oil and refinery petroleum residues to transportation and home heating fuels. The process is able to cope with the relatively high levels of heavy metals present in these feedstocks and can convert more than 90% of the feed to synthetic crude. The yield of distillate product generated by CANMET Hydrocracking is greater than that produced by any other existing commercial process. The process uses an inexpensive coal additive to suppress coke formation, and by January 1985, 39 patents had been issued in Canada, the U.S.A. and eight other countries. During the period 1980-85 more than 30 000 hours of operation had been achieved in two pilot plants at CANMET's Energy Research Laboratories on Canadian, Venezuelan and Middle East feedstocks. In October 1979 a licensing agreement was signed whereby EMR granted Petro-Canada exclusive rights to develop and market the process. Petro-Canada in turn chose Lavalin Inc., a major Canadian engineering company, as its joint venture engineering partner to undertake further engineering development and marketing of the technology. Partec Lavalin, with input from the Ralph M. Parsons Company, conducted scale-up and engineering design work for a 5000 barrels per day commercial demonstration unit. Petro-Canada's Board of Directors approved the project in November 1981, and the decision to proceed with the construction of the demonstration unit at its Montreal refinery was announced in January 1982. The construction phase of the CANMET Hydrocracking residual oil upgrading unit at Petro-Canada's Montreal refinery was inaugurated on

September 15, 1983. As of January 1985, the construction of the plant was on schedule for start-up by the end of 1985.

**Economic Council
of Canada report
on energy**

In January, following three years of study, the Economic Council of Canada (ECC) released its 207-page report "Connections: An Energy Strategy for the Future", with 29 recommendations in four major categories - strategic goals, the oil and gas sector, the electricity sector, and conservation and substitution. The analysis in the report focused on the supply and pricing of oil, natural gas and electricity in support of the position that economic efficiency should govern Canada's energy policy. The Council proposed a new framework for energy policy with provision for new pricing and taxation policies. As part of this strategy, it urged federal and provincial governments to establish clear principles for revenue sharing and management of resources. The report argued that provinces should have the right to manage and collect surplus revenues from development of their resources but the federal government should have an agreed share of those funds. The Council strongly endorsed deregulation of oil and gas prices and a more efficient tax and incentive system. Allowing the domestic oil price to rise to world levels, gradually freeing domestic gas prices and changing federal energy taxes would help stimulate oil and gas exploration, increase natural gas sales, and generally promote other energy projects. With regard to electricity, the ECC suggested that subsidies for domestic prices be eliminated because they lead to over-consumption and waste. Capital is drained from other economic areas into the low-return electrical investments. Power companies should gradually introduce a new rate system which would encourage consumers to use electricity in off-peak hours. This would spread demand more evenly and reduce the need for additional excess capacity. The federal government should give significant support to the nuclear power industry to keep the CANDU reactor technology alive for at least the next five years. In the interim, there should be a thorough inquiry into the industry to weigh the costs and benefits of future backing.

**U.S. natural gas
prices to remain
low under
deregulation**

In January, price ceilings were being lifted in the U.S. on about one half of the country's natural gas after 30 years of strict federal control. Surplus supplies of gas and falling oil prices were expected to keep consumers prices stable, in addition to federal regulations that prevented pipeline companies from making rate adjustments based on anticipated changes in the price of decontrolled gas. Consequently, it appeared unlikely that Canadian gas exporters could count on a turn-around in the depressed U.S. gas market.

A NEP critique

In the period 1981-85, many critiques in the form of articles and books directed attention to the National Energy Program (NEP), particularly to what were perceived at the time to be its failures. Much of the criticism was concentrated on the NEP as an economic policy only, or on particular aspects of it such as the 25 per cent Crown interest provision which attracted strong criticism from the international oil industry. Among the studies which

provided a broader perspective of the NEP was a book released in January (completed in October 1984) entitled "The Politics of Energy - the Development and Implementation of the NEP" (Doern and Toner). The authors found the NEP to be primarily an exercise in political power intended to restructure relations between the federal government and Alberta and between the federal government and the oil and gas industry, and they assessed it in this light and in relation to all of its objectives: Canadianization, security of supply and self-sufficiency by 1990, and fairness in the distribution of wealth and in the burden of price increases. The NEP was considered to have been successful in restructuring political power in that the industry could no longer take the federal role for granted nor automatically assume that industry interests would be the same as those of the Alberta government. The producer provinces also saw that the federal government could act decisively. Progress towards the three objectives of Canadianization, security, and fairness in revenue sharing and in pricing indicated partial success but each of the goals fell short of expectation because each goal was at times in conflict with the others and involved trade-offs. A price was paid in terms of short-term efficiency in expectation of the benefits of longer-term efficiency in the form of a more competitive energy economy operating in the Canada Lands as well as western Canada. Detailed conclusions are set out in the book with respect to the objectives and consequences of the NEP and the general conclusion reached was that "it is neither as bad a policy as its critics believe, nor as good as its main political sponsors say it is. There are some successes, some failures, and some areas of the policy where one cannot gauge effects in the short term, or perhaps at all".

Canada LNG Corp.
proposal to
ship LNG to
Japan

In February, Osaka Gas Co. of Japan withdrew from a sales contract with Canada LNG Corporation (formerly the Western LNG Project) which was planning to export liquified natural gas (LNG) to Japan, citing continuing delays in finalizing the project. The proposal to ship LNG to Japan had originally been developed by Dome Petroleum which subsequently withdrew from management of the project and, on November 1, 1984, the National Energy Board approved assignment of export Licence GL-76 to Canada LNG Corporation, the licence previously held by Dome. Applications for facilities were consolidated into one project and assigned to Canada LNG Corp. In March 1985, the Minister of EMR stated that while the federal government would like to see the project to sell LNG to Japan go ahead, it would not provide any financial guarantees to the proposed LNG plant on the B.C. coast. In March, the Japanese purchases who were still committed to the project indicated that they were supportive of it and eager to make as many concessions to the Canadian side as possible, but no decision on the project's fate was taken by a March 31 deadline they had previously set. Later, in May, the restructured Canada LNG consortium (Mobil Oil Canada Ltd. and Petro-Canada each having a 30 per cent interest, Nissho-Iwai Corp. of Japan - 15 per cent, Westcoast Transmission Company - 15 per cent, and Suncor Inc. - 10 per cent) continued negotiations with Japanese

customers but by the end of the year no further progress had been made. The NEB hearing on the project had taken place late in 1983 and, at the end of 1985, remained adjourned pending successful negotiations of gas pricing and financing for the proposed \$2.5-billion project.

**Bent Horn crude
oil shipped
from the Arctic**

In February the federal government announced that approval had been given to Panarctic Oil Ltd to proceed with its Bent Horn oil field demonstration project - the first movement by tanker of crude oil from the High Arctic to southern markets. In August, the company shipped its first crude oil from the Bent Horn oil field on Cameron Island in the MV Arctic, with the crude oil arriving in Montreal on September 10. Panarctic hoped that this first shipment of 16,000 cubic metres (100,000 barrels) would eventually lead to continuing supply from the Arctic in an amount that would replace all of Canada's imports of light crude oil.

**Dome's debt
problems**

In February, after three years on the edge of bankruptcy, Dome Petroleum Ltd signed an agreement with its creditors whereby they waived an earlier requirement that the company raise \$350 million on the open market as part of the overall debt-restructuring plan. However, the company remained vulnerable to a debt squeeze if interest rates increased as most of its debt was still at floating rates. The company was also vulnerable to plummeting oil prices. In April, Dome filed documents with regulatory authorities for a worldwide public offering of equity-related securities in the amount of \$100 million, in compliance with a requirement of an agreement with the lenders who had agreed to reschedule the \$5.2 billion debt. Dome's debt problems remained unresolved and, by February 15, 1987, the lenders were in position to begin legal action that would put the company into bankruptcy proceedings but by late 1987 they had not done so.

**Quebec-Newfoundland
Churchill Falls
power dispute**

In February, the Quebec Court of Appeal ruled that additional recall above the 300 MW specified in the Quebec-Newfoundland power contract of 1969 would be tantamount to breaking the contract and would therefore be illegal. The contract allowed recall only of 300 MW whereas Newfoundland was seeking at least 800 MW in addition to that amount. Later in the year, on October 28, the Newfoundland Supreme Court also found in favour of Quebec. In 1976 Newfoundland had requested 800 MW from the Churchill Falls power plant and in September of that year launched legal action before the Supreme Court of Newfoundland, seeking to recall Churchill Falls power. Quebec countered with its court action in 1977.

**The Atlantic
Accord -
Federal-
Newfoundland
agreement on
offshore oil and
gas resource
management**

Following the June 14, 1984 Agreement-in-Principle between then Leader of the Opposition Brian Mulroney and Newfoundland Premier Brian Peckford, and the subsequent election of Mr. Mulroney's Progressive Conservative government on September 4, 1984, negotiations took place between the Ministers of Energy for Canada and Newfoundland to finalize an agreement for joint management and revenue sharing of the petroleum resources offshore Newfoundland and Labrador. These negotiations culminated on February 11 with the signing of the Atlantic Accord.

Both governments undertook to introduce necessary legislation to their respective legislatures within one year to implement the substance of the Accord. Under terms of the Accord, both governments share responsibility for management of offshore exploration, development and production through equal membership on the Canada-Newfoundland Offshore Petroleum Board (three from each side with a neutral chairman). The Board assumes the functions and operations of COGLA and the Newfoundland and Labrador Petroleum Directorate (NLPD) for the Newfoundland and Labrador offshore. Where necessary, one minister retains paramountcy for approval of fundamental, reviewable Board decisions where consensus is not obtained. Before Canada has achieved (or when it loses) self-sufficiency and security of supply, decisions relating to the pace and mode of exploration and the pace of production will be approved by the federal minister. Following attainment of self-sufficiency, the provincial minister will have paramountcy. The province has responsibility in any case for decisions relating to the mode of development providing self-sufficiency and security of supply would not be unduly delayed as a consequence of such decisions. The Accord provides Newfoundland with the right to establish and collect royalties and other provincial-type resource revenues and taxes as if the resources were on land. In addition, the province will receive equalization offset payments over a period of 14 years after the start of production. A development fund of \$300 million (75% federal, 25% provincial) is to be established to allow for the preparation of necessary infrastructure in advance of offshore development and production. There is provision for constitutional entrenchment of the Accord should the necessary provincial support be achieved.

Background to the Atlantic Accord

The Atlantic Accord, signed by the federal and Newfoundland governments on February 11, followed a long history of exploration off the Newfoundland coast and extensive efforts on the part of the previous federal government in the 1970s and early years of the 1980s to reach an agreement with Newfoundland on offshore jurisdiction. Exploration for oil and gas in the Newfoundland and Labrador offshore region began in 1964 and, in 1979, the first major oil discovery was made at Hibernia P-15, 165 nautical miles (300 km) east-southeast offshore St. John's. Hibernia P-15, the 42nd well drilled on the Grand Banks, had a calculated flow rate of 20,000 barrels of high quality oil per day. Following that discovery, 17 new exploratory wells had been drilled by early 1985, nine of which resulted in significant discoveries. At that time, 45 exploration agreements were in effect in the Newfoundland and Labrador region covering 26 million hectares, with drilling program commitments valued at \$2.8 billion for the period 1982-90.

Purposes of the Atlantic Accord

The Atlantic Accord, signed by the Government of Canada and the Government of Newfoundland on February 11, included the following statement as to the purposes of the Accord:

- (a) "to provide for the development of oil and gas resources offshore Newfoundland for the benefit of Canada as a whole and Newfoundland and Labrador in particular;
- (b) "to protect, preserve, and advance the attainment of national self-sufficiency and security of supply;
- (c) "to recognize the right of Newfoundland and Labrador to be the principal beneficiary of the oil and gas resources off its shores, consistent with the requirement for a strong and united Canada;
- (d) "to recognize the equality of both governments in the management of the resource, and ensure that the pace and manner of development optimize the social and economic benefits to Canada as a whole and to Newfoundland and Labrador in particular;
- (e) "to provide that the Government of Newfoundland and Labrador can establish and collect resource revenues as if these resources were on land, within the province;
- (f) "to provide for a stable and fair offshore management regime for industry;
- (g) "to provide for a stable and permanent arrangement for the management of the offshore adjacent to Newfoundland by enacting the relevant provisions of this Accord in legislation of the Parliament of Canada and the Legislature of Newfoundland and Labrador and by providing that the Accord may only be amended by the mutual consent of both governments; and
- (h) "to promote within the system of joint management, insofar as is appropriate, consistency with the management regimes established for other offshore areas in Canada."

**Canada Centre for
Remote Sensing
- in support of
energy programs**

The technology of remote sensing has been developed to serve a broad range of applications and as a result many of the activities of Canada Centre for Remote Sensing (CCRS) contribute indirectly to the success of energy programs in both the public and private sectors. The most easily identified such application is the use of radar imagery for the ice and ocean surveillance which is considered to be essential for safe navigation in arctic waters. Because of the diverse resources required to conduct significant experiments offshore, most of the related projects are carried out in close collaboration with other government agencies. CCRS is the lead agency in a large interdepartmental program to launch a Canadian satellite, RADARSAT, whose primary mission is to provide ice information in support of Arctic and East Coast shipping. The principal sensor on RADARSAT is a Synthetic Aperture Radar which will provide high resolution, all weather imagery of sea ice and open oceans. On a daily basis, the radar will map shipping corridors from the Beaufort Sea, through the Northwest Passage, Lancaster Sound, Baffin Bay and into the Labrador Sea. Sea ice, icebergs, wave patterns and even ships themselves will be visible in the imagery, allowing the vessel's master to plan the overall strategy to reach his destination as well as updating him on the local conditions. RADARSAT will also carry a microwave scatterometer with which to measure the surface wind speed over the ocean. An optical imager, similar in some respects to that carried on the LANDSAT series of

satellites, will be used mainly for land applications. In February, RADARSAT was in Phase B, the stage in which the detailed design of the sensors and the satellite was being completed, the costing of the entire program refined and prototypes of the high risk subsystems being built. RADARSAT is scheduled for launch late in 1990. The principal source of remotely sensed data of Canada has been the optical imagery from the LANDSAT series of satellites. Although the major benefits for the use of this data lie in agriculture and forestry, the systems and methodologies now in place are being used in a wide variety of mapping applications which are an essential element of energy exploration and development programs.

Ernst & Whinney
report on Petro-
Canada's
acquisition of
Petrofina

In March, the federal government released a report prepared by Ernst & Whinney, a Toronto accounting firm, on the 1981 Petro-Canada acquisition of Petrofina Canada Inc. In its major findings, Ernst & Whinney reported that the price paid for Petrofina by Petro-Canada, while above fair market value, represented a fair price because of the special benefits that were expected to accrue to Petro-Canada; the premium paid for the Petrofina shares was comparable to those paid in similar situations in the private sector; the steps in the acquisition process were completed in accordance with usual business practices, except that a thorough investigation was not undertaken but Petro-Canada did have a warranty that there had been no material adverse change in the net assets of Petrofina between December, 1979 and the acquisition date. Ernst & Whinney was unable to determine whether the value established in the pre-evaluation represented fair market value because insufficient pre-acquisition information was located. The internal post-acquisition valuations undertaken by Petro-Canada were not comprehensive and not undertaken using the most appropriate method for determining fair market value. Petro-Canada did give due regard to economy, received value for money upon purchase of Petrofina, and considered future capital requirements in the pre-acquisition evaluation. No economic benefit would be realized by Petro-Canada arising from the accounting treatment of the bridge financing loan interest cost, a conclusion based on the assumption that the present value of the future tax savings of these interest costs would be immaterial. The report was made available by the Minister of EMR to the House of Commons Standing Committee on Public Accounts and the Auditor General.

Petro-Canada's
1984 annual
report

In March, Petro-Canada released its annual report for 1984 which showed revenues at a nine-year high of \$4.9 billion, 20 per cent above 1983; internally generated cash for the first time in excess of \$1 billion; and the amount of cash available for reinvestment and debt retirement also at a new record of \$911 million, up 38 per cent from 1983. Although oil production was at the highest level of the company's history, conventional oil reserves rose from 45 million cubic metres in 1983 to 48.4 million cubic metres (307 million barrels) in 1984. Of the total of \$734 million spent on exploration, 75 per cent was directed to frontier regions.

**Propane Vehicle
Program ended**

The Propane Vehicle Grant Program was terminated on March 31, 1985, having been operated since its introduction on June 1981 when there were only 2000 vehicles being run on propane. By mid-1985, over 100,000 vehicles were using this fuel, the program target having been 90,000 vehicles. Under the program, taxable contributions of \$400 per vehicle were paid to assist in the cost of converting to propane. Under a separate program for federal vehicles, grants were paid out for over 5,000 propane vehicles. The total of federal payments under the federal Propane Vehicle Grant Program was approximately \$25 million.

**Northern Canada
Power Commission**

In March, the Cabinet Committee on Social Development agreed that the Minister of Indian and Northern Affairs was to begin discussions regarding the possible transfer of the Northern Canada Power Commission, a federal Crown corporation, to the Territorial governments or to private interests. This matter was still in process at the end of the year.

**Canada Oil
Substitution
Program ended**

The Canada Oil Substitution Program (COSP) was terminated on March 21, 1985, having been inaugurated in June 1981 to reduce oil consumption to 10 per cent of total energy used in the residential and commercial sectors by 1990. The program consisted of taxable grants of up to 50 per cent of eligible conversion costs to a maximum of \$800 (and up to \$5,500 for multiple units) to help cover the cost of converting heating systems from oil to natural gas, electricity, propane and renewable energy sources. Total grants issued in the period June 1981 to March 1985 aggregated \$600 million. In announcing on November 8, 1984 that the program would be terminated, the Minister of Finance estimated a saving of \$95 million in 1985-86. COSP paid grants towards conversion or conservation measures in over 900,000 units. Electricity accounted for 41 per cent of the units which received COSP grants, natural gas for 35 per cent, wood for 20 per cent, and propane and a small number of conversions to other sources, and conservation measures, for the remaining 4 per cent. The oil savings which resulted from this program were estimated at 6,680 cubic metres (42,000 barrels) per day.

**The Western
Accord - federal
government and
producing
provinces
agreement on a
comprehensive
oil and gas
policy**

The Western Accord between the Government of Canada and the Governments of Alberta, Saskatchewan, and British Columbia was initialed by Energy Ministers on March 27 and announced in the House of Commons the following day. The four Governments agreed on the need to modify the existing taxation and pricing regime in order to stimulate investment and job creation in the energy sector and to increase the degree of energy security. They further agreed that these objectives could best be met within a regime of market sensitive pricing for both oil and gas and within a fiscal regime based on profit sensitive taxation. To this end, the four Governments agreed to replace existing arrangements covering the pricing and fiscal treatment of oil and gas with provisions dealing with deregulation of crude oil prices, domestic natural gas pricing, and fiscal principles. Oil price decontrol was scheduled to start on June 1, 1985; movement to market-sensitive domestic natural gas pricing by

November 1, 1985; complete phase-out of the Petroleum and Gas Revenue Tax (PGRT) by January 1989; and the phase-out of the Petroleum Incentives Program in one year, with 'grandfathering' arrangements for existing Exploration Agreements. The PGRT would not apply to new production of oil, natural gas, or gas liquids on or after April 1, 1985. The Western Accord also provided for the removal as soon as possible of the Natural Gas and Gas Liquids Tax (including the Natural Gas Export Levy), the Incremental Oil Revenue Tax, the Canadian Ownership Special Charge, the Crude Oil Export Charge, and the Petroleum Compensation Charge.

Reaction to the Western Accord

The announcement of the Western Accord at the end of March led to much favourable comment from the oil and gas industry and the producing provinces in April and in succeeding months. The industry expected that price de-controls and the removal of taxes on production would lead to increased exploration and development and greater investment in the industry. The investment community also reacted favourably, regarding the Western Accord as marking the beginning of a new era of prosperity for the Canadian oil industry. The emphasis on reinvestment and taxation of profits rather than revenues was expected to provide for the potential of a new period of growth. While agreeing that the deregulation of oil prices would expose the Canadian industry to the volatility of world oil pricing, analysts thought that prices would remain stable over the medium term. The major beneficiaries of the Accord were expected to be the producers of 'old' oil in Western Canada and companies which had a sizeable PGRT burden relative to cashflow and earnings. The Ontario government, the Economic Council of Canada, and others, expressed concern as to whether the oil industry would reinvest in resource development. There was also concern that cancellation of oil industry taxes would result in a higher federal deficit unless the government raised gasoline or other taxes. (The excise tax on gasoline was increased in the May 23 budget.) Some critics of the Western Accord thought that Canadianization objectives had been abandoned.

Western Accord provides PGRT offsets

On April 30, the Ministers of EMR and Finance provided information on provisions of the Western Accord that related to the Petroleum and Gas Revenue Tax (PGRT) offsets which had been designed to help non-taxpaying companies while making the tax system more profit sensitive. Companies with insufficient income to make full use of their current income tax write-offs were to be allowed to offset a portion of certain of these unused deductions against their current PGRT liabilities. Thus, unused write-off associated with exploration and development expenditures incurred after March 31, 1985 could be used to shelter net production revenue from PGRT during the PGRT phase-out period to 1989.

Western Accord to protect Canadian interests in the event of international oil market disturbances

Considerable attention was given in the comments in April on the Western Accord to Paragraph I(9): "In the event of international oil market disturbances that result in sharp changes to crude oil prices, with potentially negative impacts on Canada, the Government of Canada, following consultations with provincial governments, will take appropriate measures to protect Canadian interests".

In the context of that provision, an analysis of actions taken by other OECD countries to offset the adverse economic effects of oil price volatility in the past showed that some countries had maintained free market prices during normal circumstances but had retained certain special pricing or fiscal authorities on a standby basis for use during an emergency, Japan, Switzerland, the Netherlands, and Sweden being examples of countries following that approach. Other countries, such as Denmark and Italy, had maintained a permanent system of price controls, sometimes applied lightly through the monitoring of market activity, and sometimes applied stringently through extensive cost-based regulation. The third group of countries, including the U.S., U.K., and West Germany, had refrained from direct regulation of prices, but instead had relied on fiscal instruments before, during and after a price "shock" to offset the adverse macroeconomic and social effects.

**Oil price
forecasting --
the perils of
prophecy**

In view of the oil and gas policy changes in the early months of 1985, there was considerable interest in Canada in international oil price trends and expectations. In April, and in the previous several months, a number of forecasts were published most of which predicted some downward pressure on oil prices during the succeeding two or three years and no firming of markets and prices until the early 1990s. Since the early 1970s, oil prices had become increasingly volatile and difficult to predict. As a result, forecasters were looking for ways to develop and make use of projections for the future, which were still vital to the planning process, and yet to be prepared to react to changing circumstances which might alter their underlying assumptions. It had become increasingly apparent that forecasts should be based on scenarios that would allow for alternate paths of action if conditions in the economic environment should change. A study completed in December 1984 by Cambridge Energy Research Associates and Arthur Anderson & Co., under the title of "The Future of Oil Prices: The Perils of Prophecy", concluded that "Firms cannot predict the future, but they can plan and be prepared for it, and so turn uncertainty into opportunity". The study noted that:

"The costs of incorrectly anticipating long-term oil price behavior have in the last few years proved staggering, both for companies and for countries. We estimate that in 1980-81 alone, on the order of half a trillion dollars was invested around the world on the assumption that oil prices would continue to rise throughout the rest of the century. Some of this investment remains highly viable under today's very different expectations. A significant part of it will, however, add up to be one of the most expensive business errors ever. The perils of prophecy are already evident in the current troubles of the oil and gas and oil services industries throughout the world; in the growing number of non-performing loans in North America, which have

caused or threaten to cause the collapse of major financial institutions; and in the mountainous debt of oil-exporting countries."

The study predicted that, over the long term, the oil market would remain vulnerable to political upheavals. The journal, *Oil and Energy Trends*, in April 1985, concluded that "the diversity of pricing forecasts can be welcomed, as previous unanimity has produced all the wrong answers and if forecasts differ, at least some pundits may be proved correct." Of all of the forecasts available in April, a small number did correctly predict the decline in the international oil price to the \$10 level, which occurred by mid-1986.

Canada - U.S.
natural gas
relations in a
period of change

In an EMR paper presented to an American Gas Association Government Relations Seminar in Washington in April, the matter of managing the change in Canada-U.S. natural gas relations that had been initiated in 1984 was reviewed and assessed. The paper concluded that a new era for Canadian gas export had begun on November 1, 1984 with the announcement by the Canadian government of approval of export licence amendments reflecting gas arrangements freely negotiated between private parties. This led to the de-fusing in both countries of the gas export pricing issue. In April, it was expected that further changes, for example, in relation to the "floor price" for Canadian gas exports or the tariff structure of U.S. pipelines would be managed with similar regard to the need to provide a flexible framework which recognized political and market realities in both countries. In the previous few months the Canadian gas industry had clearly demonstrated an ability to respond to market, policy and regulatory changes. The record of developments in that period could be cited as a case study in public and private management of the business of change as both countries responded to major changes in natural gas markets and prices.

Canada Oil
and Gas Lands
Administration
annual report

On April 2, the third annual report of the Canada Oil and Gas Lands Administration (COGLA) was tabled in Parliament, to provide the official record of oil and gas activity in Canada Lands for 1984. In 1984, COGLA negotiated 47 exploration agreements, bringing to 167 the total number of agreements concluded under the Canada Oil and Gas Act. The 47 agreements called for the drilling of 48 exploration wells during the following five years, at an estimated cost of \$1.6 billion. Estimates of oil and gas discovered in the Canada Lands stood at 409 million cubic metres (2.6 billion barrels) of oil, and 959 billion cubic metres (33 trillion cubic feet) of natural gas.

Ocean Ranger
Inquiry

Recommendations of the Ocean Ranger Royal Commission were tabled in Parliament on April 18. At the same time, EMR released an analysis of responses to recommendations made by the Royal Commission, specifying what agencies and industry sectors were doing to improve safety in offshore drilling operations. Companies had already taken action on 55 of the 66 recommendations for rig safety.

**EMR Research
Agreements
Program**

On May 6, EMR research grants totalling \$1.4 million under the department's Research Agreements Program were announced for 1985-86. This annual program had been maintained since the mid-1970s and provides research fund support in the natural, physical and social sciences and in engineering, in research centres across Canada. Funds granted under the program are awarded on the basis of departmental priorities in areas where research is most urgently needed. About 47 per cent of the 1985-86 funds were to be used for studies in earth sciences, 31 per cent for energy research, and 22 per cent for minerals research.

**Manitoba Heritage
Fund**

In May, the Manitoba government announced the establishment of a heritage trust fund to channel profits from hydro power exports to the general economic and social development of the province.

**Norman Wells
oil pipeline**

The official opening of Norman Wells oil pipeline took place on May 16, on completion of an 870-km pipeline to Zama, in northern Alberta, and expansion of the Norman Wells oil field. The Norman Wells field, discovered in 1921, had been produced on a small scale for local use until further development was undertaken in the early 1980s in preparation for shipment of the oil to markets in southern Canada. Expenditures by Esso Resources and Interprovincial Pipe Line Ltd. on the oil field and pipeline complex totalled \$895 million.

**Hibernia oil field
Environmental
Impact Statement**

On May 15, Mobil Oil Canada Limited submitted its Environmental Impact Statement (EIS) to the Canada Oil and Gas Lands Administration (COGLA) and the Newfoundland and Labrador Petroleum Directorate. The EIS was found to be acceptable for public review and was referred jointly by COGLA and the NLPD to the federal-provincial Hibernia Environmental Assessment Panel which had been established in November 1984 by both governments to review the EIS and make recommendations related to the environmental and socio-economic aspects of the proposed development. The Panel had undertaken to present its recommendations on the environmental acceptability of the proposed Hibernia development to federal and provincial energy and environment Ministers, and to the Canada-Newfoundland Offshore Petroleum Board, by December 31, 1985. Mobil's EIS analyzed all aspects of the two production options and concluded that the Floating Production System would cost \$5,475 million, and the Fixed Production System, \$4,770 million. Each of the systems would employ about 24,000 person/years over the period 1986-1996. The company examined environment and social issues in detail and concluded that, overall, the Hibernia oil field development could proceed in an environmentally sound manner, and that all known risks and costs would be manageable. The Hibernia P-15 discovery well was completed successfully in September 1979, yielding good quality (31-35° API) oil at rates of up to 592 m³/d (3,725 b/d). It was later reported to be capable of a production rate of 20,000 b/d, at that time the largest calculated flow of oil ever recorded in Canada.

National
Conservation
and Alternative
Initiative -
and phase-out
of COSP, CHIP,
FIRE, NEAP,
ICAP, and AECIP

In May, the federal government announced a new National Conservation and Alternative Energy Initiative, including support of residential conservation but at reduced funding levels following cancellation of the Canada Oil Substitution Program (COSP) and the phase-out of the Canadian Home Insulation Program (CHIP). There was also to be support for alternative fuels and other alternative sources of energy such as biomass and solar. Support was to continue for such programs as the R-2000 Super Energy Efficient Housing Program and the use of natural gas as a motor fuel. In addition to COSP and CHIP, other large grant programs being phased out included the National Energy Audit Program (NEAP), the Industrial Conversion Assistance Program (ICAP), and the Atlantic Energy Conservation Investment Program (AECIP). The overall objective of any new conservation and renewable energy initiatives would be to promote cost-effective measures which would de-emphasize grants. In June, the federal government announced that no new applications would be accepted under the Forest Industry Renewable Energy (FIRE) Program. FIRE had approved \$86 million for projects, since its inception in 1978, which were expected to generate \$540 million of private-sector investments in Canadian goods and services. In future the emphasis would be on cost-shared research, development and demonstration support to encourage the development and application of new products and technologies. Initiatives under the FIRE Program were estimated to save some 1.4 million cubic metres of oil equivalent per year (24,000 barrels per day).

Federal Budget
May 23, 1985

On May 23, the Minister of Finance brought down his first budget since the new government was elected in September 1984. The budget was directed to encouraging private initiatives, improving the efficiency of government, and reducing the national debt. It contained a number of measures of consequence to the energy sector and energy consumers. In particular, the Minister tabled Notices of Ways and Means Actions that would give effect to the fiscal measures announced in the Western Accord, including those relating to the PGRT phase-out, the PGRT exemption on new production, the PGRT offsets, and the individual PGRT exemption. The Budget provided for the termination of the Petroleum Incentives Program; a savings of \$50 million over the following three years as a result of the redirection of conservation and renewable energy initiatives; the reduction of \$100 million by the end of the decade in the Atomic Energy of Canada Limited (AECL) R&D budget; and the closure of AECL's two heavy water plants in Cape Breton, at an annual saving of \$100 million. The Budget also formalized the phase-out of the PGRT, the repeal of the Incremental Oil Revenue Tax and the Canadian Ownership Special Charge. The excise tax on gasoline was increased by 2 cents per litre, and the sales tax was to be increased from 10 per cent to 11 per cent, effective January 1, 1986. There was some criticism of the excise tax increase, and concern over the federal revenue losses that would be generated by the Western Accord.

Deregulation of
the Canadian
oil market

Deregulation of the Canadian oil market commenced on June 1 under terms of the Western Accord signed by the federal and western Provinces' Energy Ministers on

March 27. The immediate impact was a reduction in federal taxes of 0.7 cents per litre on gasoline, diesel fuel and other petroleum products as a result of the removal of the Canadian Ownership Special Charge (COSC) on crude oil. For the first time since 1973, Canadian oil producers, refiners and consumers were free to buy and sell as the market dictated, without obtaining government approvals, subsidies, licences or permits. Markets would reflect international conditions. In addition to the removal of the COSC of \$48.39 per cubic metre (\$7.69 per barrel), the administered price system for crude oil was ended, as was the restriction on short-term oil exports. Heavy fuel oil as well as home heating oil and gasoline could be imported without government approval. Other market control mechanisms ended at this time included the Special Old Oil Price (SOOP) which commenced on July 1, 1982, the New Oil Reference Price (NORP) which was initiated on January 1, 1982, the Petroleum Compensation Charge (PCC) announced on October 30, 1980, and the Oil Import Compensation Program (OICP) which was initiated effective January 1, 1974. While removing these and other price and market control mechanisms, the federal government continued to monitor Canada's oil supply, and undertook to protect Canadian interests in the event of international oil market disturbances which caused sharp increases in prices or threatened continuity of supply. On termination of oil import compensation, there was a deficit of about \$1.5 billion in the Petroleum Compensation Account which had to be absorbed into the overall federal deficit.

**National Research
Council cuts
its energy R&D
program**

Pursuant to an announcement made in the November 1984 Economic Statement, the National Research Council (NRC) in June was preparing to wind down its program of alternative energy research which had been initiated by a federal decision taken in 1974 to establish a coordinated program of energy research and development, involving a number of departments and agencies. The goal of that program was "to develop the scientific and technical capabilities to achieve self-reliance in energy with minimal environmental, social or economic costs and maximum industrial or quality of life advantages". The NRC established a project office for coordination of energy research work in 1975 and, as the activity level increased, particularly in the volume of contracted-out research, the project office eventually evolved into the Energy Division in 1979. During the period 1979-1984, the Division conducted research and contracted out projects in a number of programs including the following: fusion energy, heat pumps, solar energy, bioenergy, wind energy, peat energy, hydrogen and energy storage, and energy analysis. In his appearance before the Standing Senate Committee on Energy and Natural Resources on March 28, 1985, the President of NRC, while regretting the elimination of the Energy Division, emphasized that energy-related R&D would continue in those NRC laboratories unaffected by the budget cuts and that the Council would maintain its energy research capabilities through other avenues. However, he noted that Canada still lagged behind other industrialized nations in its total commitment to R&D.

U.S. natural gas market barriers

In June, concern was being expressed in the Canadian natural gas industry over new rules proposed by the U.S. Federal Energy Regulatory Commission (FERC) which would prohibit the export of Canadian natural gas in "take or pay" contracts under which U.S. buyers paid for a minimum flow of Canadian imports, whether they could accept delivery or not, thereby providing guaranteed revenue flow-back to Canadian producers. This, in turn, allowed developers of new fields to obtain necessary financing. The new rules would also make transportation costs the only competitive issue for pipeline companies. Canada was facing new obstacles in the U.S. market under the proposed rules which had been announced by the FERC on May 31 in the form of four proposals: Blanket Certificate Transportation Program, Limited Take or Pay Relief, Optimal Expedited Certificates, and Billing Procedures for Purchased Gas Costs. On October 9, 1985, FERC issued a final rulemaking on the interstate transportation of natural gas. Non-discriminatory access to transportation to facilitate competition in the U.S. gas market was approved. Take or pay buyout provisions were eliminated and, instead, the FERC opted to leave the solution of take-or-pay problems to private regulations subject to FERC review on a case-by-case basis. Optimal expedited certification was implemented but the FERC delayed implementation of the controversial block billing mechanism until July 1986 when it was to be phased in, in some form. The block billing mechanism was designed to put downward pressure on gas prices by separating low gas cost from higher cost gas. Uncertainties for Canadian gas exports continued into 1986.

The future for CANDU and the uranium industry

At the annual meeting of the Canadian Nuclear Association, held on June 4, the federal Minister of State (Mines) confirmed the government's commitment to the continued development of safe nuclear power as an important energy source. Concern was expressed by other speakers at the meeting about the future of the CANDU nuclear system in view of the lack of sales while there was some optimism for the future of the uranium industry even though it was having to contend with fluctuating spot prices in an international market characterized by excess inventories and production.

Lepreau II Environmental Assessment Review Report

On June 14, a joint federal-New Brunswick Environmental Assessment Review Panel released a 40-page report on the environmental and directly-related social impacts of the proposed Lepreau II, a CANDU 630 megawatt nuclear reactor, proposed to be constructed at the Lepreau site in New Brunswick. The Panel had been established on November 23, 1983. Specifically excluded from the Panel's mandate were considerations relating to the export of electrical power, Canada's nuclear policy, and Canadian national energy policy and nuclear power's role within it. The Panel's report concluded that the Lepreau II unit could be built and operated in a socially and environmentally acceptable fashion provided several concerns were addressed, including more monitoring of the existing Lepreau I operation to provide data to support the various expert opinions on the environmental impacts of the project, as expressed during the Lepreau II hearing. The majority of the Panel's recommendations were directed to

Maritime Nuclear (a consortium of Atomic Energy of Canada Limited and the New Brunswick Electric Power Commission) and the N.B. government. The Panel directed its first recommendation to the federal government, calling for a public review of Canada's nuclear policy. The federal government, in late 1984, had decided against such a review, as had the previous government in 1980.

**Ocean Ranger
Part Two report
made public**

The second and final report of the Royal Commission on the Ocean Ranger Marine Disaster was presented on July 2, setting out recommendations for offshore safety. The Part One Report, which dealt with the causes of the Ocean Ranger disaster of February 15, 1982, was released in August 1984. By mid-1985, some 55 of the 66 recommendations contained in that report had been implemented, or were in the process of being implemented, and more than half of the 70 recommendations contained in Part Two had been partly or fully implemented. Actions on the Royal Commission report had included an increase in Canada's search and rescue capability off Newfoundland during the harsh winter drilling season, studies initiated with industry into new rig evacuation systems, and extensive research and development to improve diving safety. The Canada Oil and Gas Lands Administration (COGLA), in concert with other federal departments and agencies, had undertaken an extensive program of examination and implementation of the Royal Commission recommendations and intended to see all of them put in place. A final status report on the federal government's response to the Royal Commission's recommendations was released on April 14, 1986. By that time, about 85 per cent of the Commission's 136 recommendations were being implemented and the government was continuing to work on those outstanding.

**Petroleum
Monitoring
Agency report
for 1984**

On July 17, the Petroleum Monitoring Agency's report "Monitoring Survey 1984" was released. It was based on data provided by the 115 largest oil and gas companies in Canada, accounting for close to 90 per cent of the petroleum industry's total revenues. Total industry revenues were up 6 per cent to \$64.5 billion. Compared with 1983, net income from total operations more than doubled to \$3.7 billion in 1984 while internal cash flow rose 21 per cent to \$10.4 billion. The two principal elements in the overall industry profit gain were the absence in 1984 of major asset write-offs which had severely depressed 1983 income, and the recovery in refining and marketing operations. Total capital expenditures by the industry declined by 1 per cent to \$10.2 billion in 1984 which, with a higher level of cash flow, resulted in a 21 percentage point decline in the overall reinvestment rate to 80 per cent in 1984. The upstream reinvestment rate (net of grants) increased one percentage point to 71 per cent. The revenue available for sharing among industry and governments rose \$1 billion to \$23.1 billion in 1984 with the federal government share decreasing to 15 per cent, from 21 per cent in 1983, due primarily to the reduction to zero in the Natural Gas and Gas Liquids Tax Rate and a large deficit in the Petroleum Compensation Account. The provincial governments' share increased over 2 percentage points to 31.5 per cent; and the industry's share rose more than 3 percentage points to

54 per cent. Based on upstream revenues, Canadian ownership and control of the petroleum industry rose half a percentage point and over one percentage point, respectively, to 41.8 and 39.7 per cent. Based on total petroleum related revenues (upstream and downstream), Canadian ownership and control rose 0.6 and 1.8 percentage points in 1984 over 1983 to reach 39.5 and 31.4 per cent, respectively.

Energy R&D

On July 10, the federal government announced a new five-year plan for energy research and development, covering the period 1986-1991. For the first fiscal year, 1986-87 \$101.1 million was allocated, followed by \$95.9 million for fiscal 1987-88, and \$95.8 million for each of the remaining three years. The program provided for work in seven major areas: efficient use of energy; coal, heavy oil and oil sands; nuclear fusion; renewable energy; new liquid fuels; conventional oil, gas and electricity; and general environmental issues. The program was designed to place a high priority on R&D that was aimed at increasing the efficiency of energy use, that sought to take advantage of Canada's massive endowment of fossil fuels, and that addressed environmental, health, safety and regulatory constraints to energy developments. The program also re-established modest but vital R&D activities in renewables and hydrogen, following extensive consultation with the relevant industrial and research communities and it reinstated a major project in the development of the fusion fuel tritium.

Hibernia to have concrete platform production system - oil reserves downgraded

In July, Moibil Oil Canada Ltd. announced its preference for the construction of a concrete platform in the Hibernia offshore oil field. When completed, the gravity-based structure and production and shipping facilities, including specialty built crude oil tankers, would have a potential production capacity of 150,000 barrels of oil a day, expected by the early 1990s. Mobil's partners in the project included Petro-Canada, Gulf Canada Resources Inc., Chevron Resources Limited and Columbia Gas Development of Canada Ltd. Newfoundland welcomed the decision as it would provide greater employment opportunities than the installation of a floating system which had been initially favoured by Mobil. In August, the Canadian Petroleum Association released its latest estimate of the established oil reserves at the Hibernia oil field and reduced its 1981 estimate of 1.1 billion barrels to 648 million barrels. The new estimate followed extensive drilling and evaluation of the field's geology which had revealed a complex structure characterized by disconnected small pools.

NDP proposed windfall profits tax on oil

At the New Democratic Party biennial convention in July, a resolution was unanimously approved in favour of a windfall profits tax on oil company revenues. The proposal was directed in particular at profits from oil discovered before 1974 when exploration and development costs were relatively low.

AECL's Cape Breton heavy water plants closed

Cape Breton's two heavy water plants ceased production on July 16. Atomic Energy of Canada Limited had announced earlier in the year that it would be discontinuing the production of heavy water at the Glace

Bay and Port Hawkesbury plants, and the licences for these plants were subsequently revoked. Lack of markets for heavy water caused the plant closures. The decision to close the plants was announced in the federal government's May 23 budget.

**Cold Lake heavy
oil project**

Esso Resources Canada Ltd started commercial production from its Cold Lake heavy oil plant in July. The company also announced its intention to proceed with two or three more stages of production of its planned six-stage operation leading to an expected production of 57,000 barrels per day.

**AECL Annual
Report; and
Corporate Plan**

Early in July, Atomic Energy of Canada Limited (AECL) released its annual report for fiscal 1984-85. During 1984-85, revenue from commercial operations declined by 16 per cent to \$306 million as a result of a decline in work in Canada with current projects reaching completion, and a lack of sales in the international market. Although revenue from supply and servicing of CANDU reactors dropped by 25 per cent to \$146.3 million, net profits rose to \$9.8 million from \$8.9 million the year previously as a result of cost and staff cutting. Because CANDU technology had become recognized as being well-established, the federal government initiated in its May 23, 1985 budget a phased reduction in AECL's funding, with 1984-85 funding of \$200 million to be reduced to \$100 million by the end of the decade. In May, AECL had released its Corporate Plan covering the future direction, organization and activities of the Corporation. The Plan set out the means by which the Company would reduce federal funding over the succeeding five years, to 1990, including the following initiatives: placing prototype reactors in a secure storage mode, including the Gentilly 1 and Douglas Point prototype reactors; realignment of R&D programs and shut down of the WR-1 Whiteshell, Manitoba, and NRX Chalk River, Ontario, research reactors; shared funding responsibility for specific R&D activities with the user provinces and utilities; and utilizing income generated from AECL's commercial activities to supplement R&D programs. This would follow from the re-orientation that had been underway in AECL since the late 1970s from a technologically-focussed organization to one which was both commercially and technologically oriented and managed.

**Deregulation leads
to surplus
domestic oil
capacity,
followed by
adjustments**

Early in August, there were indications that oil from Western Canada, that had been normally used by refineries in Quebec and the Maritimes in the previous few years when the federal government was subsidizing shipments east of Montreal, was now being displaced by foreign oil. Under deregulation, initiated in June, the transport subsidy (Domestic Transfer Compensation Program) had been removed and refineries were at liberty to purchase their feedstock whenever they chose. As a result, the National Energy Board reported that about 150,000 barrels a day of Western Canadian oil had been shut-in, with related lost revenue of about \$5 million a day. However, by October, the shut-in level was reduced to 40,000 barrels a day due to a postponement in the closing of the Gulf refinery in Montreal and a cut-back in oils sands production as the Suncor and Syncrude plants closed down temporarily for

annual maintenance. By the end of the year, petroleum supply and demand were in somewhat better balance following the adjustment to deregulation although the prospect of falling prices was causing some concern.

**Quebec-Hydro-N.B.
Power
interconnection**

On August 17, an interconnection project to increase the power exchange capability between New Brunswick Power Commission and Hydro-Québec was officially completed. Built at a cost of \$70 million, the facility increased the linkage from 500 MW to 1,000 MW. The project, known as the Northwest Transmission Network and Second Hydro-Québec Interconnection, involved construction of two new terminals and the upgrading of several others.

**Coleson Cove coal
conversion
feasibility
study**

In August, New Brunswick Power and EMR completed an in-depth study on the feasibility of converting the Coleson Cove generating station in New Brunswick to coal. Coleson Cove at the time was the largest generating station (1,000 MW capacity) on New Brunswick Power's system and consisted of three oil-burning units. The study concluded that, while the conversion to pulverized coal would be technically possible and would be economic if oil prices remained near \$Cdn. 32.00 per barrel, Coleson Cove would become uneconomic should oil prices fall to \$26.00. With the uncertainty of international oil prices in mid-1985, N.B. Power did not proceed at the time with the conversion to coal program but it remained an option in future planning. Conversion of Coleson Cove to coal had been under active consideration since the announcement of the Special Atlantic Canada initiatives in October 1980 as part of the National Energy Program (NEP). In April 1986, N.B. Power decided to convert one of the three oil-burning units to coal. This would enable it to run tests on the converted unit and evaluate the possibility of building future coal-burning units (300 MW) at the Coleson Cove electricity generation site.

**Columbia River
Revelstoke dam
completed**

On August 29, the Revelstoke Dam on the Columbia River in B.C. was officially opened. Construction of the dam began in 1978 when B.C. Hydro was projecting an 8 per cent annual increase in electricity demand growth, a rate that did not materialize. As a result, B.C. Hydro had a 1,843 MW dam which was surplus to provincial needs until at least 1990. In the mid-1980s, the B.C. government was endeavouring to secure export markets for the Province's surplus electricity capacity. The Revelstoke Dam was built at a cost of \$2 billion.

**Manitoba's
Limestone
Generating
Station**

In August, Manitoba Hydro awarded the major contracts for construction of its Limestone Generating Station, and construction was scheduled to commence in the fall. In February, the National Energy Board had approved a large firm power contract between Manitoba Hydro and Northern States Power Company of Minneapolis, starting in 1993. The NEB issued the licence on March 18 permitting exports to a maximum of 500 MW of firm power, and up to 3,405 GW of energy, in each 12-month period from May 1, 1993 to April 30, 2005. The sale was expected to yield net revenues of about \$400 million over the life of the contract. In mid-1985, Manitoba Hydro estimated the cost of the Limestone Generating Station at \$2.1 billion.

Manitoba Hydro had filed its application with the NEB on August 2, 1984 to export 500 MW of firm power each year for 12 years, and the hearings had been completed on November 16, 1984.

**Motor Vehicle
Fuel Consumption
Program and
the trend to
improved fuel
consumption
ratings**

Information available in August on average fuel consumption of new cars showed that the consumption rating had improved from 15.4 L/100 km in 1975 to 8.6 L/100 km in 1985, an improvement of 44.2 per cent. During the intervening period, North American automobile manufacturers and consumers had invested heavily in improved technology, product design and manufacturing processes. This had led to a number of basic changes in the design and manufacture of the car, providing for weight reduction, unit body construction, downsizing of engine size and other changes which all provided for greater fuel efficiency. In Canada, the Motor Vehicle Fuel Consumption Program, established in 1977, encouraged the production, marketing and purchase of more efficient light duty vehicles. To facilitate successful operation of this voluntary program and deal with issues relating to future standards, a consultative government/industry committee, chaired by Energy, Mines and Resources Canada, was formed. The Motor Vehicle Fuel Consumption Standards Act, which received Royal Assent in 1982, remained available as contingency legislation which could be proclaimed if circumstances warranted. The voluntary program sent strong conservation signals to car manufacturers. The improvement in fuel consumption ratings over the period 1975-1985 was a clear indication of the major trend to greater fuel efficiency which in the period 1978-1984, accounted for average savings of 5 million litres of gasoline a day. Other factors which contributed to reduction of gasoline usage included dieselization of trucks, substitution with alternative fuels, and higher gasoline prices.

**NewGrade heavy
oil upgrader
- Regina**

On September 3, the federal government announced that, on the basis of preliminary findings from technical, financial and economic studies, arrangements would proceed towards provision of federal loan guarantees to the NewGrade heavy oil upgrader project in Regina, designed to process 8000 cubic metres (50,000 barrels) of oil a day. The announcement followed the signing of an agreement between the Government of Saskatchewan and Consumers' Cooperative Refineries Ltd (CCRL) on equity arrangements for the NewGrade upgrader. On October 19, the federal government confirmed a loan guarantee to NewGrade Energy Inc. for the construction of the heavy oil upgrader. The federal government offered to provide guarantees on loans of up to 35 per cent of the project's construction costs, including working capital and interest, to a maximum of \$275 million. Approval of the loans followed completion of a Phase I feasibility study which indicated that the project would be technically sound and commercially feasible. The plant, to be integrated with an existing CCRL refinery in Regina, was scheduled for completion in 1988. Final details for the federal loan guarantees were to be worked out over a few months following the October 19 announcement.

Devon Coal
Research Centre

On September 13, the Alberta and federal governments announced the opening of the \$22-million Coal Research Centre at Devon, Alberta, 32 km southwest of Edmonton. Construction of the research complex was funded by the Alberta-Canada Energy Resources Research Fund, a joint program of the federal and Alberta governments administered by the Alberta Department of Energy and Natural Resources. The centre is occupied by the coal department of the Alberta Research Council, the Coal Mining Research Centre (a private, non-profit company) and the Coal Research Laboratory of the Canada Centre for Mineral and Energy Technology (CANMET) of the federal Department of Energy, Mines and Resources. The centre has three components: a pilot plant with space for testing mining equipment and coal processing techniques; an office/laboratory complex; and a high-head laboratory for research at high temperatures and pressures.

International
Energy Agency
(IEA) oil
emergency test

Canada took part in the International Energy Agency (IEA) emergency oil-allocation test which took place from September 20 to November 18. Canada was one of 21 nations participating in this fifth test of the IEA Emergency Sharing System. The tests were designed to ensure an equitable distribution of oil in the event that an international shortage occurred in the future. Within Canada, 23 oil companies and 5 oil-producing provinces participated in the test which was directed by the Energy Supplies Allocation Board (ESAB). The Board is the federal agency responsible for preparing and administering regulations controlling the allocation of oil in Canada in the event of a national emergency caused by supply shortage. The previous test conducted by the IEA took place in the spring of 1983. The 1985 test exercised three contingency plans. They included the following basic features to which the 21 member countries of IEA have agreed: each country must maintain emergency oil reserves equal to at least 90 days of net imports; each country must have a demand restraint program which could be activated in an emergency to reduce its oil demand by at least 7 per cent; and the IEA will maintain an emergency sharing system for the fair distribution of available supplies among member countries. No emergency reserves are required in Canada because it is a net oil exporter. The country's emergency programs are the allocation and rationing programs of ESAB. In the event the IEA Secretariat determined in a real situation that member countries as a whole had suffered a reduction in oil supplies of at least 7 per cent, each country would then be required to restrain demand by 7 per cent, and draw on its emergency reserves at a rate determined by the agreement. The oil made available by these measures would then be shared among the member countries proportionately. If the supply reduction reached 12 per cent, the same procedures would apply, except that each country would restrain demand by 10 per cent.

Royal Commission
on the Economic
Union

In its report released in September, the Royal Commission on the Economic Union and Development Prospects for Canada (Macdonald Commission) made a number of references to energy policy. It welcomed the tenets of the Western Accord and supported the movement to world oil prices, under normal conditions. It recommended that, over

time, natural gas prices be allowed to find their own levels in both domestic and export markets, and concluded that security of energy supply should remain an important objective. However, it recommended that the 25-year reserve period for natural gas be re-evaluated soon, and periodically in the future. It also recommended that governments establish a simplified taxation and regulatory regime for energy and leave it in place. The Commission proposed that the fiscal system be based on profits rather than revenues. A number of the Commission's recommendations relative to energy had been implemented in the Western Accord and other policy initiatives in 1985, or were in the process of being implemented.

**OPEC 25th
anniversary**

In a statement released on September 15, marking its 25th anniversary, the Organization of Petroleum Exporting Countries (OPEC) blamed the existing oversupply and market weakness on not only market forces but also the deliberate policy actions of the governments of consuming countries, claiming that non-OPEC oil producers had been systematically undercutting OPEC's prices in order to maximize their sales at the expense of OPEC. It had been able to hold the price structure from which other producers were benefitting, but at great sacrifice to its members. OPEC further claimed that those who adopted an uncooperative attitude to OPEC in favour of short-term price cutting would discover that the economics of the short-term are also the economics of the short-sighted.

**Ontario-Alberta
natural gas
pricing issue**

In an address of September 12, the Ontario Minister of Energy stated that he expected natural gas prices to consumers to fall following the implementation of market sensitive natural gas pricing. He was critical of the Western Accord, terming it one-sided that did nothing to benefit consumers. In October, Ontario government statements expressed concern about the tendency to maintain high natural gas prices in Ontario while providing U.S. customers with cheaper-priced gas. Ontario threatened to import less expensive natural gas to ensure that a proposed freeze on the domestic price of natural gas would not hold.

**B.C.'s new
electricity
export policy --
Peace River
power for
California**

In September, the B.C. government announced a change in its electricity export policy. It decided to permit B.C. Hydro to pre-build the Site C dam on the Peace River for power export to California. Previously, the provincial government had a policy of constructing dams only for the province's needs and exporting temporary surpluses. The new policy called for the promotion of electricity exports to accelerate the development of hydroelectric generating stations. The B.C. government considered California as the potential market for additional exports and Site C on the Peace River as the location for the next generating station. Such exports would be conditional upon secure access to Bonneville Power Administration's transmission lines to California. The Administrator for the BPA was on record as supporting B.C.'s new policy and undertook to work with B.C. to negotiate mutually-beneficial long-term access to the transmission lines.

U.S. threat
to Canadian
uranium exports

On September 16, the U.S. Secretary of Energy announced that he had determined the domestic uranium industry to be non-viable, thereby triggering an investigation by the U.S. Trade Representative (UTR) with a view to assessing the feasibility of imposing trade restrictions. Although, at the end of 1985, the UTR recommended against taking any import restraint measures, it was anticipated that there would be continued effort on the part of the U.S. industry to impose restrictions on the import of foreign uranium, including Canadian imports, probably through the legislative process.

Energy
conservation
in industry

In October the Canadian Industry Program for Energy Conservation (CIPEC) reported on its 1984 conservation results which showed that a long-range goal of the program -- to achieve, by 1985, a 23-per-cent improvement in energy efficiency over the base year 1972 -- had been realized one year earlier. This gain represented an annual saving on the part of industry equivalent to 12 million cubic metres (75.5 million barrels) of oil. CIPEC was created in the mid-1970s in the interests of promoting energy conservation in industry. With government assistance, industry organized into 16 voluntary task forces to carry out the program. The sectors represented by CIPEC accounted for 84 per cent of all energy consumed by Canadian industry.

Regulation of
offshore
pipelines

In the interests of minimizing the potential for regulatory duplication by the apparent jurisdictional overlap conferred under the National Energy Board Act and the Canada Oil and Gas Lands Administration (COGLA) Oil and Gas Production and Conservation Act, the Minister of EMR announced on October 11 that with regard to offshore pipelines: "Where the National Energy Board, upon the approval of the Governor in Council, issues a Certificate of Public Convenience and Necessity in respect of a trunk pipeline that transports hydrocarbons from production platforms in the submarine area to the landfall, approval pursuant to the Oil and Gas Production and Conservation Act will be granted, upon due consideration by me of my responsibilities under that Act. The advice and assistance of COGLA will be sought by the NEB in respect of the submarine portion of trunk pipelines as to matters of safety and environmental protection, after the issuance of the Certificate."

AECL report
on nuclear
waste disposal

Early in October, Atomic Energy of Canada Limited (AECL) released its "Second Interim Concept Assessment of the Canadian Concept for Nuclear Fuel Waste Disposal," which concluded that nuclear fuel waste could be safely disposed of by sealing it in a vault deep in the plutonic rock of the Canadian Shield. The four-volume interim report was based on extensive scientific experiments and used computer modelling to predict the future behaviour of a disposal vault for nuclear fuel wastes.

Polar Gas
Project

On October 2, the Polar Gas Project, a consortium including Petro-Canada, Ontario Energy Corporation, Panarctic Oil Ltd, Tenneco Oil Canada Ltd. and TransCanada Pipelines Ltd. as partners, submitted outstanding documents to complete its application to the National Energy Board of June 29, 1984. It proposed to construct a buried natural

gas pipeline from the Mackenzie Delta, south along the Mackenzie River Valley to a point at Edson, near Edmonton, where it would link with existing gas pipeline systems. The proposed system was estimated to cost \$3.3 billion (1984\$) exclusive of interest during construction. The Polar Gas Project, formed in late 1972, had commenced research and feasibility studies in 1973 and, in December 1977, applied to the NEB to construct a gas pipeline from the Arctic Islands to join the TransCanada system at Longlac in northern Ontario. In December 1983, Polar Gas announced its intention to construct a gas pipeline from the Mackenzie Delta area to Edmonton in place of the 1977 proposal, and it filed that application in June 1984, as updated in October 1985. However, by the end of 1987 no date had been set for a hearing of the June 1984 application as amended, the application being kept on hold at the request of Polar Gas.

**Hydro-Quebec
electricity
export contracts
with the New
England Power
Pool**

On October 14, Hydro-Québec and the New England Power Pool (NEPOOL) signed an export contract that would generate revenue of \$U.S. 3 billion for the Quebec Crown corporation. The contract, Hydro-Québec's most important to date, called for 2000 MW (7000 GWh/year) of firm energy to be exported to NEPOOL, starting in September 1990 for a period of 10 years. In late 1985, Hydro-Quebec was providing 1 per cent of NEPOOL's electrical energy requirements and, under the October contract and other export licences it held, it would be supplying about 10 per cent by 1990. To meet existing contract requirements, Hydro Quebec was building a 690 MW interconnection from Des Cantons, Quebec, to Comerford, New Hampshire scheduled for service by July 1986. To meet requirements of the October 1985 contract, the interconnection would be upgraded to 2000 MW by 1990. In addition to the new contract, Hydro-Quebec held the following export contracts and agreements with NEPOOL in 1985: an Energy-Storage Agreement (Licence EL-165) for the period 1986-2004 for 3,000 GWh to be exported in 12 months; an Interruptible contract (Licence EL-166) for the period 1986-2002 covering 2,060 GWh in 12 months; and an interruptible contract (Licence EL-167) for the period 1986-1995 covering 6,920 GWh in 12 months. The October 14, 1985 contract had not been the subject of an NEB hearing by the end of 1985.

**Economic Council
oil price
forecast**

In its Annual Report for 1985, issued in October, the Economic Council of Canada foresaw a gradual increase of about 40 per cent in the world oil price over the period 1985-1995. In October, the official selling price (OSP) of Arab Light crude was \$U.S. 28 per barrel and the spot price was \$27.85. During the price decline that took place in 1986, the spot price and the OSP dropped to as low as \$8. By mid-1987, there was some firming of the OPEC reference price at the \$18 level with the spot price slightly higher. The price experience of 1985-87 again illustrated the uncertainties of international oil price forecasting.

**Québec-
Newfoundland
Churchill Falls
power dispute**

In October, the Supreme Court of Canada and the Newfoundland Supreme Court both rendered decisions relating to the Churchill Falls issue. The federal court extended an appeal date, from September until mid-December, for

Newfoundland to file an application for leave to appeal a February 1985 Quebec court decision against the recall by Newfoundland of 800 MW of Churchill Falls output. The Newfoundland Provincial Supreme Court (Appeals Division) brought down its decision on the power recall issue in favour of Quebec. Newfoundland and Quebec had been engaged in court actions for almost 10 years regarding the electric power contract, signed in 1969, that governs the sale of electricity from Churchill Falls to Hydro-Québec. In 1976, Newfoundland launched an action in the Newfoundland Courts, seeking recall of additional power for use in Newfoundland. Hydro-Québec then launched a separate action in the Quebec Courts, arguing that additional recall could not be allowed under the contract. The contract allows recall of 300 MW; Newfoundland wanted an additional 800 MW, at least. The February 1985 Quebec Court of Appeal decision ruled that additional recall above 300 MW would be tantamount to breaking the contract and therefore illegal. The Newfoundland Supreme Court (Appeals Division) decision of October 28, 1985 also ruled against recall. The Supreme Court of Canada in April 1985 had given Newfoundland until September 30 to file an application for leave to appeal the Quebec court decision of February and, in October, this date was extended until mid-December.

Nelson River hydro

On October 8, Manitoba Hydro officially placed in service a second bipolar transmission facility connecting generating facilities on the Nelson River with the distribution network near Winnipeg and thereby adding 1800 MW of high voltage direct current transmission (HVDC) capacity to the 1620 MW supplied by the first transmission link completed in 1977. The additional capacity made provision for future generation from the Limestone hydro station which Manitoba Hydro was commencing to construct, with the in-service date of the first unit scheduled for 1990. In 1985, the Nelson River Transmission System consisted of the Radisson and Henday Converter Stations, located 40 km apart on the Nelson River, and two 900 km HVDC transmission lines connecting them to the Dorsey Station near Winnipeg.

Polar Continental Shelf Project - 1985 season

In October, the results of the Polar Continental Shelf Project (PCSP) 1985 field season were being assessed. More than 225 scientific parties were supported by the PCSP in the Arctic Islands and the mainland coastal areas in 1985 from the base camp at Resolute and the camp at Tuktoyaktuk. An ice island was occupied in March by a construction crew which erected a permanent camp and built an aircraft runway on the ice over a length of 3,500 metres. Seismic, gravity and bathymetric data were collected from surveys conducted on the ice island. The ice island moved in a generally southwesterly direction in the Arctic Ocean about 100 km in the period June to August and then by October had retreated to the point from which it had started in June. There were plans to again use the ice island in 1986 to continue the geophysical and geological observations. As in past Polar Continental Shelf programs, work in the 1985 field season was directed extensively to oceanographic and environmental studies of the Beaufort Sea and the Northwest Passage. The passage of

the U.S. ship, Polar Sea, through the Northwest Passage in the summer of 1985 heightened interest in sovereignty issues and related scientific studies of the region.

**Uranium resource
appraisal -
year-end 1984**

In October, the uranium resource assessment for 1984 was released after being completed by EMR's Uranium Resources Appraisal Group (URAG). The assessment showed that Canada had 54,000 tonnes of Uranium at the end of 1984 in three price categories in the range of \$100 to \$300/kg U, the three categories being measured, indicated, and inferred. Compared with the 1982 assessment, there was a shift in the economic distribution of Canada's known uranium resources due to a number of factors including the continuing upward pressure on production costs which necessitated the use of higher cut-off grades for assessing certain selected deposits. In addition, resources associated with some of the recently discovered Saskatchewan deposits were assigned to the higher price categories as a reflection of uncertainties associated with their costs of exploitation. Notwithstanding the decline in resources of current economic interest, Canada's uranium recoverable from mineable ore remained greatly in excess of foreseeable domestic requirements.

**Canada-U.S.
Inter-
Parliamentary
Group Report**

In early October, the Twenty-Sixth Meeting Report of the Canadian Delegation to the Canada-United States Inter-Parliamentary Group was tabled in the Senate. Energy-related discussions at the meeting held earlier in the year had included those relating to new natural gas pricing and export policies; electricity trade, with the U.S. delegates reacting positively to the concept of increased Canadian electricity exports; and Canadian uranium exports, which some U.S. delegates judged as being injurious to the U.S. uranium industry. The meeting was an occasion for Canadian delegates to describe the government's new energy and investment policies, particularly related to the Western Accord as announced in March, which were favourably received by the U.S. side. A suggestion by one U.S. Senator that the decade-old proposal for continental energy policy be revived was not enthusiastically received by Canadian delegates.

**Restrictive
Trade Practices
Commission
hearing on
combines
investigation
of oil pricing**

In October, the Restrictive Trade Practices Commission (RTPC) re-opened its hearings on the State of Competition in the Petroleum Industry. The hearings by the RTPC had commenced in October 1981, based on a report of the Director of Investigations and Research, Competition Act, which had been released in February 1981. The Director had concluded, following an inquiry which had been initiated in February 1973, that monopolistic conditions and practices in restraint of trade in the petroleum industry were of such importance that they should be considered by the RTPC within the broad context of a Section 47 inquiry. While the RTPC had completed all of the scheduled phases of its inquiry early in 1985, it reopened the hearings in October to deal with three topics: rack pricing of gasoline; changes in the structure of the Canadian petroleum industry associated with Petro-Canada's purchase of assets from Gulf Canada Limited; and the reported change in the mandate of Petro-Canada.

The RTPC completed this final phase of its hearings in October and its report was released to the public on May 16, 1986. (See also note for March 1981.)

Uranium and
nuclear issues
- the future of
nuclear energy,
waste disposal,
research,
exports

In mid-October, a Private Member's Bill C-231, the Nuclear Power Act, was introduced in the House of Commons. It called for a moratorium on the continued development of nuclear power; the establishment of a commission of inquiry into its use and development; and a national referendum on the continued use and development of nuclear power. The bill was defeated. It was one of a number of uranium and nuclear energy issues debated in Parliament in the last four months of 1985, considerable attention also being given to nuclear waste disposal, to the welfare of displaced workers when the two heavy water plants in Cape Breton were closed in July, to the reduction in AECL's research and technology budget on health and safety, and to Canada's uranium export regulations. The policy on foreign ownership of uranium mines, which had been initiated in the early 1970's, was also questioned and came under review at the end of the year with the expectation that a less restrictive policy would be put in place.

Petroleum and
Gas Revenue Tax
(PGRT) exemption

On October 22, the Minister of EMR released additional details on the Petroleum and Gas Revenue Tax (PGRT) exemption provision announced in the Western Accord in March. The exemption covered new production of oil and gas, as well as approved major new energy projects. The details followed released on September 16 of draft amendments to the PGRT Act and its regulations which would implement the PGRT exemption. The provision, announced in the Western Accord by the governments of Canada, Alberta, B.C. and Saskatchewan, eliminated the PGRT for any new production of oil, natural gas or natural gas liquids from wells drilled or deepened after March 31, 1985; for major new energy projects; and for the incremental production from new waterflood and tertiary oil recovery projects. The October 22 announcement set out the details for the administration of this PGRT-exemption provision. In making this announcement, the Minister reported that with this and other measures announced in the Western Accord, the petroleum industry had already responded by increasing drilling activity.

New Frontier
Energy Policy

On October 30, the Government of Canada announced the introduction of a new frontier energy policy to provide new petroleum exploration incentives, streamline the regulatory burden, and improve the federal royalty regime for oil and gas companies operating in Canada. The policy changes were set out in a document entitled "Canada's Energy Frontiers: A Framework for Investment and Jobs." The changes included:

- . "A proposed Canada Petroleum Resources Act to replace the arbitrary powers now contained in the current Canada Oil and Gas Act.
- . "The creation of a refundable 25-per-cent investment tax credit for all exploration expenses above \$5 million per well anywhere in Canada.

- . "Abolition of the retroactive and confiscatory Crown Share, or 25-per-cent "back-in" provision, held by the Government for all interests in frontier lands.
- . "Fairer methods to ensure that new frontier oil and gas projects are at least 50 per-cent Canadian owned.
- . "An improved federal royalty regime that will reward success by limiting the financial burden on industry during early production.
- . "A simple, clear, competitive system for issuing exploration rights to ensure those rights go to companies most interested in exploring. The bidding system will enable the Government to meet its social and economic objectives, such as Canada Benefits, native participation and environmental protection, and provide for a strong regional input on how rights are issued.
- . "Legislative changes to ensure that Petro-Canada will receive no preferential treatment."

**New Frontier
Energy Policy;
Atlantic Accord;
Western Accord**

The frontier energy policy, announced on October 30, was the federal governments third major energy policy initiative, since being elected in September 1984, and followed announcements earlier in 1985 of the Atlantic and Western Accords, towards deregulation of the Canadian oil and gas industry. The three major policy initiatives were designed to place greater reliance on the market and ease the burden on industry of government intervention and regulation. They were directed towards creating a new energy policy environment which would be attractive to domestic and foreign investors. The new legislative framework for the policy had been prepared in close consultation with the governments of Newfoundland and Labrador, Nova Scotia, and the Yukon and Northwest Territories. The management regime for Canada's energy frontiers was to be contained in a proposed new Act, the Canada Petroleum Resources Act.

**Elements of the
New Frontier
Energy Policy
contained in the
Canada Petroleum
Resources Act**

The proposed Canada Petroleum Resources Act announced on October 30 as part of the New Frontier Energy Policy included provisions for establishing a new management regime for Canada's energy frontiers. Under the new legislation, replacing the Canada Oil and Gas Act, exploration rights would be issued through an Exploration Licence and, if a company's exploration effort resulted in a significant oil and for gas discovery, the company would be entitled to a Significant Discovery Licence. If the economics and technology were sufficiently favourable to enable commercial production, a Production Licence would be issued. Under the new Act, a simple, competitive system for exploration rights to prospective lands would ensure the maximum return to Canadians as the resource owners. The lands issuance process was to be based on a single bidding criterion, with rights going to the highest bidder. Before an Exploration Licence was issued, the Government of Canada would ensure that the views of the native and community groups were taken into account, as well as the protection of the environment, appropriate levels of local and Canada benefits, and Canadian participation. A maximum term of

nine years was to be set for all exploration licences. The proposed new legislation and the related announcements set out the specifics of the Crown Share, Canadian Ownership, the role of Petro-Canada, fiscal measures, royalties, and the new commercial incentives for frontier investment in the form of a 25 per-cent Exploration Tax Credit. The Tax Credit was designed to bridge the gap between the expiration of Petroleum Incentives Payments (PIP) on March 31, 1986 and the commencement of frontier development. It would apply to qualifying expenses in excess of \$5 million per well, for wells drilled anywhere in Canada. For investors that were non-taxpaying, the provision would be refundable at a 40-per-cent rate. Qualifying exploration expenses incurred after December 1, 1985 and before January 1, 1991 would earn the credit. The Petroleum Incentives Program was to be eliminated in favour of a frontier royalty regime that would be profit-sensitive and would encourage investment.

**Reaction to the
New Frontier
Energy Policy**

Reaction at the end of October, immediately after the announcement of the New Frontier Energy Policy, was highly favourable in the oil and gas industry, particularly in relation to the removal of the 25 per cent Crown share provision, the lessening of government intervention, the elimination of the Petroleum Incentives Program (PIP) with its high cost, the new royalty and tax credit system, and the relatively lower federal incentives for frontier activity in favour of increased western Canada activity. Some critics claimed that the new incentives for frontier exploration would favour multinational corporations over Canadian companies and that there would be a marked decline in frontier exploration. While there was some concern in Newfoundland and Nova Scotia that the new policy would deepen, rather than end, the recent slump in Atlantic Canada exploration, the governments of the two provinces believed that the new exploration tax credits and other incentive measures would more than compensate for the loss of PIP grants.

**Natural Gas
Agreement --
federal-Alta.,
B.C., Sask.,
Oct. 31, 1985**

On October 31, the federal government announced that Canada would move from government administered prices to a market-oriented regime for both domestic and exported natural gas during 1986. An agreement had been reached between the federal government and the gas-producing provinces of Alberta, B.C. and Saskatchewan, to take effect November 1, 1985. During a one-year transition period the benchmark Alberta Border and Toronto Wholesale Prices would remain frozen at existing levels. Domestic consumers would not pay the TransCanada PipeLines toll increase, that had been approved by the National Energy Board, of 11 cents per gigajoule, as this would be absorbed by producers who, in turn, would have improved access to export markets. Consumers were also benefitting from the removal of the Canadian Ownership Special Charge of 8 cents per gigajoule, as provided for in the Western Accord of March 1985. During the transition year, customers whose contracts would be expiring would be free to negotiate new contracts directly with producers at competitive prices provided a transportation toll service was in place. Although producing provinces retained the right to control removal of natural gas from their provinces, they agreed not to use

this power to frustrate the intent of the agreement on natural gas. The agreement marked the completion of the process begun by the federal government in the Western Accord of replacing prices set by government with prices set by the market.

Terms of the Natural Gas Agreement

The Agreement among the Governments of Canada, Alberta, British Columbia and Saskatchewan on Natural Gas Markets and Prices, as signed on October 31, 1985, set out the intent and the principles on which the agreement was based; the terms relating to interim prices, direct sales and competitive marketing programs, new sales to distributors, and existing sales to distributors for domestic natural gas sales; terms for export natural gas sales and natural gas imports; terms of general application, including the responsibilities of governments, producers and consumers; and provisions for monitoring the agreement. The essentials of the agreement related to the following provisions:

- "direct sales at prices and terms freely negotiated between producers and distributors or large industrial users, provided transportation service is made available by consumer provinces' regulatory bodies;
- "competitive marketing programs under which distributors will be permitted to offer discounts to meet competition;
- "export floor prices based on regional price tests rather than a single Toronto price;
- "an NEB review of TCPL's services in light of the new pricing system to ensure equitable access to this system;
- "removal of volume restrictions on short-term natural gas exports;
- "a comprehensive review of the role and operations of interprovincial and international pipelines."

History of natural gas pricing leading to the Natural Gas Agreement of Oct. 31, 1985

Prior to November 1975, the price for natural gas in interprovincial trade was determined by negotiation between producers and TransCanada PipeLines (TCPL). TCPL was the sole purchaser and carrier of gas into interprovincial markets east of Alberta. It sold its gas to provincial distributors at the city-gate at negotiated prices. The transportation component of the price had been regulated by the National Energy Board. The passing of the Petroleum Administration Act in 1975 provided for the federal prescription of city-gate prices and led to the negotiation of the first Canada/Alberta Gas Pricing Agreement effective November 1, 1975. From 1975 until 1985, the prices of Alberta natural gas sold in interprovincial trade were administered under agreements between the governments of Canada and Alberta. During this period, natural gas prices were linked to crude oil prices. Effective 1975, export prices were set by the federal government. On November 1, 1984, the Government of Canada revised its export pricing policy to allow Canadian companies to export gas to U.S. buyers at negotiated prices. The policy also made provisions for short-term exports of natural gas by order

subject to volume limitations. The Western Accord of March 28, 1985 committed Canada and the producing provinces to develop by November 1, 1985 a new market-responsive system for domestic pricing of natural gas in interprovincial trade. To develop this mechanism, a task force of senior officials from the federal government and the producing provinces was established to work with all interested parties including consuming provinces and industry. The issues identified in this process became the basis for discussion between the federal government and the producing provinces in working out the terms of the natural gas agreement signed on October 31, 1985.

**Natural Gas
Agreement export
price floors**

On November 14, the Natural Energy Board issued a statement concerning gas export rules in relation to the the October 31 natural gas markets and prices agreement. The Board established 12 regional floor prices where the export price would reflect transportation only to that point of exit. Two reference points were set in each of B.C., Alberta and Manitoba, one in Saskatchewan, three in Ontario (northern, eastern and southern regions), and two in Quebec, for sales under contracts less than two years.

**Small natural
gas producer
problems under
deregulation**

During November, small gas producers in western Canada foresaw some problems in working with the new natural gas markets and prices agreement in that they could be vulnerable in a deregulated environment where direct sales were permitted since large producers would be able to attract the big customers by attractive discounts and long-term supply security. The Independent Petroleum Association of Canada (IPAC) believed that short-term sales should not be allowed to develop to the extent that long-term contracts would be excluded because those contracts provide producers with a predictable revenue base and consumers with reliable supply. IPAC saw a solution to the problem in having small producers form supplier groups to pool reserves and offer terms comparable to those offered by large producers. Small producers would expect to have access to all market segments including residential and small commercial markets, to provide scope for direct sales agreements.

**Husky oil
upgrader**

During November, feasibility studies of the proposed \$3.2 billion Husky Oil Ltd. heavy oil upgrader for the Lloydminster area were underway. The company predicted that a persisting oil price, low in the \$20-\$29 per barrel range, would make the project uneconomic but expected a better price level. The company hoped that the project would proceed because the market prospects for heavy oil in the 1990s would be much poorer without an upgrader. At the end of 1985, the future of the project remained uncertain.

**National Energy
Board gas
hearing on the
export surplus
test**

During November, the National Energy Board continued its Omnibus Gas Exports Hearing, which had commenced in Calgary on November 18, and continued in Ottawa on December 2. Western natural gas producers were looking for less restriction on gas exports while the Ontario government and eastern consumers were calling for a continuation of restraint on exports. The Board was directing particular attention to the existing 25-year export surplus test which was being used to determine the

amount of natural gas which Canada should maintain in reserve for domestic requirements. In May 1986, the NEB released its report on Phase I of its Omnibus Natural Gas Hearing which dealt with the issue of natural gas surplus determination procedures. The NEB decided to establish new procedures to determine available natural gas surpluses, based on a reserves to production (R/P) ratio and a productive capacity check. The procedures were to be applied based on a 20-year forecast of such factors as remaining reserves, annual reserves additions, Canadian demand, estimated exports under authorized licences and orders, annual production, and annual productive capacity. The matter of actual gas surpluses in 1986 was left for Phase II of the Board's Hearing, conducted later in the year.

**N.B. Electric
Power Commission
rates issue
with P.E.I.**

On November 21, the Supreme Court of Canada dismissed an attempt by New Brunswick Electric Power Commission to obtain leave to appeal a Federal Court decision against it with respect to rates it wished to charge consumers in Prince Edward Island. New Brunswick Electric Power Commission (N.B. Power) and Maritime Electric Company Limited (MECL) of Prince Edward Island had been engaged in a dispute concerning the price at which MECL buys electricity from N.B. Power. MECL's view was that P.E.I. should be offered economy energy at the same price offered to customers in the U.S. In March 1984, MECL applied to the National Energy Board for a ruling. In February 1985, the NEB ruled that N.B. Power must sell economy energy to MECL at a price no higher than the price offered to U.S. customers. In July 1985, N.B. Power challenged the NEB decision in the Federal Court of Appeal on the grounds that the NEB exceeded its jurisdiction by interpreting and specifying the contractual terms on which N.B. Power is required to offer interruptible energy to MECL. In August 1985, the Court ruled in favor of the NEB. On 28 October 1985, N.B. Power appeared before the Supreme Court of Canada in an attempt to obtain leave to appeal the Federal Court's decision. This request was dismissed.

**Petrochemical
outlook**

An assessment made in November of the performance of the Canadian petrochemical industry in 1985 showed that, although production was higher than in 1984, there was no indication of renewed investment growth. Gloomy forecasts of world petrochemical oversupply and uncertainty about international petroleum prices were delaying the next wave of investment in Canada. The downward trend in earnings experienced earlier in the year continued as production was being sold into an extremely competitive and oversupplied market, yielding minimum profit margins and depressing the earnings of many of the major producers.

**Uncertainty in
the U.S.
deregulated
natural gas
market leads
to decline in
Canadian exports**

Effective November 1, a U.S. Federal Regulatory Energy Commission Rulemaking designed to increase competition in the U.S. natural gas market came into effect and began to create confusion in the U.S. market and uncertainty for Canadian gas exporters. Competition was to be enhanced by increasing producer and end-user access to interstate pipelines. Under the provisions of the Rulemaking, any pipeline carrying gas for a third party had

to offer non-discriminatory access to any buyer or seller seeking such service but customers of pipelines offering access also gained the right to reduce contract demand up to 25 per cent a year. Consequently, pipelines offering temporary service risked losing traditional sales volumes. The U.S. gas market appeared to have entered a period of disorganization as many pipelines began to opt not to offer themselves as "transporters of gas for others". A continuing lack of transportation capacity would become a problem for Canadian exporters who were in the process of negotiating short-term exports under provisions of the new Natural Gas Agreement of October 31 which removed volume restrictions on short-term natural gas exports. Price and marketing problems in the U.S. gas market led to a decline in Canada's natural gas exports in the first five months of 1986 of 25 per cent compared with the same period of 1985, with exports in May 1986 being 47 per cent below January 1986 exports.

Canadian petroleum
economy
promising

Early in December, the New York investment company, Morgan-Stanley and Co. Inc. issued a report on the Canadian petroleum economy, describing Canada as having possibly the most favourable economic environment in the world for oil company operations. The report predicted that profits of oil companies in Canada could rise by at least 80 per cent by the end of the 1980s, barring an oil price crash. With exploration and development costs substantially below those in the U.S., activity levels should continue to expand after rising 16 per cent in 1984 and an estimated 17 per cent in 1985, leading to higher levels of oil and gas production. A similarly optimistic report had been issued by Salomon Brothers Inc. of New York in mid-1985.

Auditor General
wins access
case on
Petrofina issue

On December 5, the Federal Court ruled in favour of the Auditor General of Canada in his dispute with the government, concluding that the Auditor General should have access to Cabinet documents concerning the 1981 Petro-Canada acquisition of Petrofina because, in the Court's view, they contained information related to matters of public expenditures. Such information falls within the A.G.'s responsibilities as defined in the Auditor General's Act.

Come-By-Chance
refinery

In December, the Newfoundland government stated that it was not interested in buying the Come-By-Chance oil refinery. Discussions were underway with Petro-Canada as to the future of the refinery which went into receivership in 1976 after little more than two years of operation and had been mothballed pending a possible successful effort to re-open it. At the end of 1985, one company was offering to buy the refinery and dismantle it for sale as scrap, and another company had indicated some interest in purchasing and operating it. In 1987, that company - Newfoundland Energy Ltd. - acquired the refinery and proceeded to refurbish it in preparation for production.

Pipeline Review
Panel appointed
re. natural gas

On December 13, the Minister of EMR announced the appointment of a three-member Panel to review the role and operations of interprovincial and international pipelines engaged in the buying, selling and transmission of natural gas. The panel was set up as part of the Agreement on

Natural Gas Markets and Prices of October 31, 1985. A report was completed by the Panel on April 14, 1986. The report laid out a blueprint for the operation of the gas industry under a market-oriented policy regime. The Panel had concluded that market-sensitive pricing by November 1, 1986 would be feasible for both government and industry.

Call for exploration proposals offshore Newfoundland under terms of the Atlantic Accord and New Frontier Policy; second round of Exploration Agreements offshore Nova Scotia

On December 17, the federal and Newfoundland governments announced the first Call for Proposals under terms of the Atlantic Accord, signed in February, and the new Frontiers Lands Policy announced in October. Proposals would be received by the Canada-Newfoundland Offshore Petroleum Board for six parcels of land encompassing 1.5 million hectares of offshore Newfoundland. Two of the parcels were located south of Hibernia, one north of Hibernia, two in the southwest Grand Banks, and one in the North Flemish Pass area. Under the new frontier energy policy, oil and gas companies would be able to bid on the basis of a single criterion, the Expenditure Commitment - the total expenditures committed within the first term of the Exploration Agreement. An Exploration Agreement was to be awarded for an initial term of four years on four of the six available parcels of land, and for five years on the two other parcels. At the end of the first term, 50 per cent of the lands would be relinquished. If one well had been drilled during the initial term, a company would be entitled to a subsequent term of three years, subject to payment of annual rentals. Companies would be required to subscribe to the Statement of Benefits Principles covering socio-economic benefits, employment and training. On December 20, 10 second round Exploration Agreements were issued to companies operating on the Scotian shelf, under provisions of the Frontier Lands Policy, following recommendations of the Canada-Nova Scotia Offshore Oil and Gas Board.

Canada Petroleum Resources Bill - legislative basis for frontier energy policy statement of Oct. 30, 1985

On December 20, the Canada Petroleum Resources Bill C-92 was introduced in Parliament. The legislation was intended to provide new petroleum exploration incentives and improve the oil and gas regime in Canada's frontiers. The new bill was the legislative basis of the policy statement "Canada's Energy Frontiers: A Framework for Investment and Jobs", announced on October 30, 1985 and would replace the Canada Oil and Gas Act of 1982. Differences between that Act and the new legislation included the following provisions of the Canada Petroleum Resources Bill; exploration rights would be issued on a competitive basis using a single bidding criterion; the retroactive Crown share, or 25 per cent 'back-in' provision, held by the government for all interests in frontier lands, was to be abolished; the 50 per cent Canadian ownership requirement would continue but would not be retroactive and would accent private sector solutions; a federal royalty regime would be designed to award success by limiting the financial burden on industry during early production; excessive regulatory powers relating to drilling and production orders would be curtailed; and Petro-Canada would lose its preferential treatment. The new bill also incorporated several amendments to the Oil and Gas Production and Conservation Act.

Task Force on
Expanded Use of
Low Sulphur
Western Canadian
Coal in Ontario

On December 18, the Alberta and Ontario governments released the report of the joint Alberta/Ontario Task Force on Expanded Use of Low Sulphur Western Canadian Coal in Ontario. The report summarized the major constraints limiting expanded sales of western Canadian coal to Ontario and recommended the appointment of a coal development advisor to work with coal producers, government, transporters and consumers to overcome the impediments to increased use of western coal, and to identify specific actions to assist in increasing the use of western Canadian coal in Ontario. Cost and technical analyses indicated that it would be cheaper for Ontario Hydro to install flue gas desulphurization (FGD) technologies and burn the higher sulphur U.S. coal rather than use the low sulphur Canadian coal. In 1985, the delivered price of western Canadian bituminous coal would have had to average about \$75 per tonne for the use of low sulphur Canadian coal to be competitive with U.S. coal after allowing for the cost of FGD required for that coal, and at the existing exchange rates. At the time, the delivered price of Canadian coal was about \$90 per tonne. However, the use of western Canadian bituminous coal would likely generate more employment in Canada than using U.S. coal and controlling acid gas emissions by flue gas desulphurization. Assessment of the two options continued in 1986.

Coal supply
and demand
outlook

Coal supply and demand statistics for 1985 through to December showed Canadian coal industry records for production and exports in that year, with production up 5 per cent from 1984 to 60.5 million tonnes and exports of over 27 million tonnes, 9 per cent above the previous year. Imports fell by 12 per cent to 16 million tonnes, reflecting the development of new nuclear capacity in Ontario, a decline that was expected to continue into the 1990s. Although coal exports increased, excess capacity in the world continued to exert downward pressure on both coking and thermal coal prices. Much of the growth in Canada's exports was accounted for by increases of coal shipments to Japan, and in 1984 and 1985 Canada replaced the United States as the second largest supplier of coking coal to Japan, the world's largest coal import market. The outlook for the remaining years of the decade was one of slow growth for additional exports with significant increases depending on the growing world thermal coal market. The importance being attached to thermal coal exports was evident in the fact that all of the major new export coal mines under active investigation in Canada, or in the pre-development phase, in 1985 were mines that would produce thermal coal. Domestic coal consumption at 48 million tonnes was slightly below the 1984 level, with the utility sector accounting for 82 per cent of domestic demand. Although Ontario Hydro's coal consumption declined by 20 per cent, its use of Canadian coal grew 5 per cent in 1985, a favourable indication for domestic coal use in this major market. The other major change in the domestic market was Nova Scotia's 17 per cent increase in thermal coal consumption to a record level of 2.3 million tonnes, with coal supplying about 70 per cent of all fuel used in electricity generation in the province. This proportion was scheduled to increase with the completion in December

of the conversion of the 150 MW oil-fired power station at Point Tupper to coal. All Nova Scotia coal requirements were being met by the province's mines.

**Electricity
surplus capacity
-- increasing
interest in
exports**

The record through to December showed that, despite significant growth in electricity demand in 1984 and 1985, there was still substantial surplus electricity generating capacity in Canada at the end of 1985. Net surplus generating capacity in 1985 was estimated to be about 24 per cent. Total new additions of generating capacity in the year amounted to 2,878 MW, substantially less than the 6,250 MW registered in 1984. Of the new additions, 47 per cent was hydro, mainly in Quebec and B.C., and 46 per cent was nuclear, all in Ontario. The remaining 7 per cent was coal, also all in Ontario. Generation expansion plans in some provinces were being postponed, including the Slave River hydro project in northern Alberta and the commitment of major new generation in the James Bay Phase II project in Quebec. In an environment of surplus capacities, utilities were actively promoting additional sales in residential, commercial and industrial markets, and seeking new export markets. New Brunswick, Quebec and Ontario were trying to expand their exports in the New York and New England markets while Manitoba was promoting sales in Minnesota, Wisconsin, North Dakota and Nebraska, and B.C. hoped to sell electricity in southern California. Most export sales had been interruptible or short-term firm contracts, but increasing interest was being shown by sellers and buyers in longer-term firm contracts which could lead to the construction of generation plants mainly for export markets. Nearly all electricity exports in 1985 were from plants built in the context of the higher demand forecasts of the mid-1970s to supply Canadian customers. The installed electrical generation capacity in Canada in 1985 was 96,746 MW. The following tabulation shows the growth in installed capacity in the period 1950-1985 in Canada:

| | |
|--------|-----------|
| 1950 - | 9,800 MW |
| 1960 - | 23,049 MW |
| 1970 - | 42,826 MW |
| 1980 - | 81,638 MW |
| 1985 - | 96,746 MW |

During that period, the share of hydroelectric capacity in Canada's total installed electrical generation capacity declined from 91 per cent in 1950 to 58 per cent in 1985, with conventional thermal generation (mostly coal) accounting for 32 per cent in 1985 and nuclear energy for 10 per cent in that year.

**Oil and gas
activity,
reserves and
security of
supply outlook**

Oil and natural gas drilling activity in 1985, as extended to the end of December, reached an all-time record of 12,564 wells, an increase of 28.7 per cent over 1984. The cost of drilling and equipping the 1985 well completions was estimated by the Canadian Petroleum Association at \$5.8 billion. Drilling activity had changed considerably over the previous five years: in 1980 gas wells accounted for almost 61 per cent of all successful wells but only 27 per cent in 1985, with oil wells increasing from 39 to 73 per cent in that period. The

implementation of new oil and gas policies in 1985 in relation to taxation and pricing contributed significantly to the increase in oil and gas industry activity in the year. Reserve estimates completed by the Canadian Petroleum Association for 1985 year-end showed that the combined oil reserves, including frontier reserves, increased 9.3 per cent in 1985 to a total of 1,460.5 million cubic metres (9.2 billion barrels). However, conventional crude oil reserves in established producing regions, declined 1.6 per cent to 832.8 million cubic metres (5.2 billion barrels). In view of the fact that significant additions of oil supplies from non-conventional or frontier reserves were not expected in the near future, the traditional areas of the Western Basin would remain the main sources of supply but there was concern that the long slide in conventional reserves would be exacerbated if the industry could not improve the replacement rate. This, in turn, raised questions about Canada's security of oil supply. Although there had been a lower level of natural gas drilling in the previous four years, natural gas reserves decreased only by 0.9 per cent in 1985 to 2,784 billion cubic metres (98.8 trillion cubic feet). In terms of net production in 1985, Canada had almost 34 years of established reserves of natural gas at the end of 1985 while established reserves of crude oil and equivalent (excluding synthetic crude oil, bitumen and liquified petroleum gases) were equal to 13.5 years of current production. The outlook was for increasing emphasis on the development of oil sands and heavy oil resources. The increase in capital and repair expenditures on oil sand development, from \$510 million in 1984 to \$1.1 billion in 1985, was indicative of this trend. Total upstream expenditures by the petroleum industry rose from \$8.7 billion to \$10.6 billion in this period, with the percentage share of expenditures on the oil sands almost doubling to 10.7 per cent.

Uranium and nuclear energy outlook

The record available at the end of December indicated that Canada produced an estimated 10,870 tonnes of elemental uranium (tU) in 1985. With the phasing in of committed development plans in Saskatchewan, and recently completed projects in Ontario, annual production capability was expected to stabilize at about 12,000 tU through the late 1980s. As domestic requirements were only about 15 per cent of output, most of Canada's production would be exported. Saskatchewan's three producers accounted for 55 per cent of the country's output in 1985 and Ontario's two producers, the remainder. At the end of 1985, Canada had 16 CANDU nuclear reactors with an aggregate net output capacity of some 9,500 MW in service and a further 7 reactors with an additional capacity of about 5,700 MW either in the pre start-up phase or under construction. Nuclear generation was accounting for about 12 per cent of total electricity generation in Canada and over one-third of Ontario Hydro's electrical energy generation. Based on world data available from the International Atomic Energy Agency (IAEA), and the status of the nuclear industry in Canada in 1985, the country's total installed nuclear capacity was expected to grow to between 15 and 20 GWe by the year 2000, requiring about 2,200 tU per year. Canada's annual uranium production capability would expand to about

12,000 tU by the end of 1986 and the country was expected to maintain its position as the world's leading exporter of uranium for several years. Because of the uncertain outlook for the uranium market in the remaining years of the 1980s, it was not likely that further domestic production projects would be brought on-stream before the early 1990s.

Canada Lands activity at high level in 1985

Information available in December on the 1985 program of exploration in Canada Lands indicated that 64 exploratory and delineation wells had been drilled during the year, an increase of 10 over 1984, with 27 being offshore Atlantic Canada, 35 in northern regions, and two in Hudson Bay. This drilling program had resulted in 15 significant discoveries, 6 offshore the East Coast and 9 in the North. For the first time since 1981, the number of oil or oil and gas discoveries exceeded the number of gas finds. Discovered resources of oil and gas increased by 15 per cent and 5 per cent, respectively in 1985. The most important event of the year was the report in December of very large flows of oil on first tests of the first delineation well to Gulf's 1984 Amauligak oil and gas discovery in the Beaufort Sea.

Columbia River Treaty

On December 31, the Columbia River Treaty Permanent Engineering Board presented its report covering the period October 1, 1984 to September 30, 1985 to the Minister of Energy, Mines and Resources and the U.S. Secretary of State. That report, and the previous 20 annual reports, were submitted in accordance with provisions of Article XV paragraph 2(e) of the Treaty between the United States of America and Canada relating to cooperative development of the water resources of the Columbia River basin, signed at Washington, D.C. on January 17, 1961. Each report set out results achieved and benefits produced under the Treaty in a given year and, in total, the reports constitute an important official record of the administration of the Treaty. Prior to commenting in detail on progress made during 1985, the reported noted that:

"The results achieved under the terms of the Treaty include construction of the Treaty projects, development of the hydrometeorological network, annual preparation of power and flood control operating plans, and the annual calculation of downstream power benefits. The three Treaty storage projects in British Columbia, the Duncan, Arrow and Mica projects, produce power and flood control benefits in both Canada and the United States. The Libby storage project provides power and flood control benefits in both countries. In the United States increased flow regulation provided by Treaty projects has facilitated the installation of additional generating capacity at existing plants on the Columbia River. In Canada completion of the Canal Plant on the Kootenay River in 1976, installation of generators at Mica Dam in 1976-77 and the completion of the Revelstoke project in 1984 have caused power benefits to increase substantially. This amounts to some 4,000 megawatts of generation in Canada that may not have been installed without the Treaty. In addition, the

installation of generating capacity at Hugh Keenleyside Dam and at the Murphy Creek Site near Trail, British Columbia is planned for the future."

The Permanent Engineering Board concluded in its 1985 report that the objectives of the Columbia River Treaty were being met.

**Petroleum
Monitoring
Agency report
for 1985**

Based on data through to December, the Petroleum Monitoring Agency (PMA) prepared its annual report for 1985 on the Canadian Petroleum Industry, and released the report on July 17, 1986. The PMA was first established by Order-in-Council under the Inquiries Act on August 1, 1980, with the authority under that Act being continued by the Energy Monitoring Act which received Royal Assent on July 7, 1982 and was proclaimed in force on February 18, 1983. It was established to provide federal and provincial governments and private users with comprehensive and objective information about the status and performance of the petroleum industry in Canada to help ensure that the soundest possible foundation was being provided for public and private sector decision-making. Its annual and first half of the year Monitoring Surveys include data on petroleum industry production, profits, flow of funds, capital expenditures, dividend payments, ownership and control, and other measures of industry performance. In 1985, net income from total operations of the industry declined 22 per cent to \$2.9 billion although internal cash flow was up 8 per cent and capital expenditures, 15 per cent from 1984. Extraordinary asset write-offs of \$1.2 billion in 1985 led to the net income decline. As a result, the rate of return on shareholders' equity declined to 7.2 per cent compared to 9.9 per cent in 1984. Revenue available for sharing among industry and governments rose \$1.2 billion to \$24.4 billion in 1985, with the federal government's share increasing from 15 per cent in 1984 to 16 per cent in 1985. The provincial governments' share decreased 2 percentage points to 30 per cent and industry's share remained essentially unchanged at 54 per cent. Canadian ownership, based on upstream revenues, rose in 1985 to 48 per cent against 42.5 per cent in the previous year while Canadian control increased 7.9 percentage points to 48.4 per cent. The 1984 survey was based on data from 125 enterprises in the petroleum industry accounting for about 90 per cent of total industry revenues. The report noted that the generally positive results for 1985 provided only limited insights as to the industry's health in mid-1986 (when the report was released) because of the collapse of oil prices in the early months of 1986 and the resulting severe impact on petroleum-related employment and investment.

**International oil
price - a major
energy policy
determinant
in Canada**

At its December 7 meeting, OPEC decided to aggressively defend its market share in the international crude oil market and estimated that share at between 17 and 18 million barrels per day. This was expected to result in an 1986 over-supply of about 1 to 1.5 million barrels per day and to put downward pressure on prices which had started to decline before the announcement. The unexpected repudiation by OPEC of both production quotas and its administered pricing system was a shock to international

markets. OPEC official prices, which had been maintained at about \$US27 a barrel level in 1985, down from the \$28.50 level through most of 1983 and 1984 following the sudden decline to that level from \$33 in March 1983, began in December 1985 to decline again. In January 1986 the official price was \$24.94. In February, it declined to \$16.65 and in March to \$12.50. In July 1986, OPEC prices were as low as \$8 a barrel. In September, it was expected that OPEC prices would stabilize between \$15 and \$18 as a result of a cutback in OPEC production to a 16.8 million barrel a day ceiling. By the end of 1986, a further cut to 15.8 million barrels a day raised prices to the \$18 a barrel level. The largely unexpected extreme international oil pricing developments of 1986 came just after completion of major energy policy changes in 1985, which was a comparatively good year for the petroleum industry in Canada, and necessitated some changes and adjustments in the newly deregulated industry. As in the 1970s and early 1980s, petroleum policy and energy policy in total in the mid-1980s required the continuing attention of the government of the day towards the objective of managing the energy economy in the best interests of Canadians in the context of an ever-changing international environment.

**Energy for the
future -- fusion
research by
AECL, NRC and
IREQ**

In December, Atomic Energy of Canada Limited (AECL) was preparing for its first year of managing Canada's national fusion program. AECL also began to participate in the operation of the \$40-million Tokamak de Varennes fusion test facility near Montreal and in the Canadian Fusion Fuels Technology Project as well as in overall international cooperation in fusion as part of its research program. In March 1987, the Tokamak de Varennes facility began operation by producing its first plasma. Research on fusion energy is proceeding worldwide, in most industrialized countries, with the ultimate objective of using it as a primary energy source. The Tokamak de Varennes facility is the result of a federal-provincial initiative in fusion research which began in 1979. Hydro-Québec joined with the National Research Council in this project which was carried out by the Hydro-Québec Research Institute (IREQ), with the collaboration of the Université de Montréal and other research institutes. The plan in the mid-1980s was to create a Canadian centre for fusion energy research, based on the Tokamak de Varennes research facility, leading to eventual commercial fusion energy plants which were expected to be developed in the next 30 years to supply energy for conversion into electricity - provided that the technology for handling plasmas of hot fusing gases at about 100 million degrees Celsius could be achieved.

ENERGY LEGISLATION

UPDATE OF FEDERAL LEGISLATION APPLICABLE TO
ENERGY, MINES AND RESOURCES CANADA

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Part III

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Update Valid Up to December 31, 1986

- 1) Petro-Canada Act, S.C. 1974-75-76, c. 61.
- 2) Energy Administration Act, S.C. 1974-75-76, c. 47.
- 3) Explosives Act, R.S.C. 1970, E-13, as am. S.C. 1974-75-76, c. 60.
- 4) Canada Land Surveys Act, R.S.C. 1970, L-5, as am. S.C. 1976-77, c. 30.
- 5) Petroleum Corporations Monitoring Act, S.C. 1977-78, c. 39.
- 6) Petroleum Administration Act, S.C. 1974-75-76, c. 47 as am. S.C. 1977-78, c. 24 (Title changed to Energy Administration Act).
- 7) Energy Supplies Emergency Act, 1979, S.C. 1978-79, c. 17.
- 8) Canada Oil and Gas Act, S.C. 1980-81-82-83, c. 81.
- 9) National Energy Board Act, R.S.C. 1970, N-6, as am. S.C. 1980-81-82-83, c. 80.
- 10) Canadian Home Insulation Program Act, S.C. 1980-81-82-83, c. 57.
- 11) Home Insulation (N.S. and P.E.I.) Program Act, S.C. 1980-81-82-83, c. 58.
- 12) Oil Substitution and Conservation Act, S.C. 1980-81-82-83, c. 59.
- 13) Department of Energy, Mines and Resources Act, R.S.C. 1970, E-6, as am. S.C. 1980-81-82-83, c. 106.
- 14) Petroleum Incentives Program Act, S.C. 1980-81-82-83, c. 107.
- 15) Canada Business Corporations Act, S.C. 1974-75-76, c. 33, as am. S.C. 1980-81-82-83, c. 115.
- 16) Energy Monitoring Act, S.C. 1980-81-82-83, c. 112.
- 17) Motor Vehicle Fuel Consumption Standards, S.C. 1980-81-82-83, c. 113.
- 18) Cooperative Energy Act, S.C. 1980-81-82-83, c. 108.
- 19) Canada-Nova Scotia Oil and Gas Agreement, S.C. 1984, c. 29.

DETAIL OF CONSTITUTING LEGISLATION
AND OF AMENDMENTS THERETO

1) Petro-Canada Act:

- i) C.R.C., c.1255:
- s.2.
- ii) S.C. 1980-81-82-83, c. 105:
- ss. 5, 21, 22, 23 (repealed), 24, 24.1 & 24.2 (added).
- iii) S.C. 1984, c. 31:
- ss. 7-10, 12-15, 16 (repealed), 19, 25, 26 & 27(repealed).

2) Energy Administration Act:

- i) 1974-75-76 c.47.
- ii) S.C. 1977-78 c. 24:
- s. 79.
- iii) S.C. 1980-81-82-83, c. 102:
- s. 16.
- iv) S.C. S.C. 1980-81-82-83, c. 114:
- ss. 1, 2, 4, 5 & 6 (repealed), 7, 8 & 9 (repealed), 11-13, 17.11 (added), 18, 18.1-18.3 (added), 19, 20, 23, 23.1 (added), 28, 29, 34-36 (repealed), 47, 48, 51, 52, 52.1 (added) 57, 58, 64, 65.1 (repealed), 65.11, 65.12, 65.13 (repealed), 65.14-65.19, 65.2-65-29 (added), 66, 67, 68-70 (repealed), 71, 72, 72.1 (repealed), 73-77, 80, 87, 93-95 (repealed).
- v) S.C. 1986, c. 9:
- ss. 65.2, 65.21, 65.22-65.25 (repealed), 65.20-65.28, 65.29-65.30, 66, 67-79.
- vi) S.C. 1986, c. 39:
ss. 47.1 (added), 49, 52(1), 53, 54.

3. Explosives Act:

- i) S.C. 1974-75-76, c. 60:
- ss. 1-4, 5, 6, 9-12, 15, 17-23, 23.1, 23.2, 24-26, repeal of ss. 7, 13, 27.
- ii) S.C. 1980-81-82-83, c. 165:
- s. 16.

4. Canada Land Surveys Act:

- i) S.C. 1976-77, c. 30:
- ss. 2, 3, 5, 6, 8, 12, 19, 20, 22-29, 31, 32, 41-43, 46, 47, 49-58, 60, 63, 65, 66-68, repeal of ss. 14-18, 21, 33-40.
- ii) S.C. 1983-84, c. 18:
- s. 30.
- iii) S.C. 1986, c. 27: s. 30.

5. Petroleum Corporations Monitoring Act:

- i) Act repealed by S.C. 1980-81-82-83, c. 112, s. 43, effective 18.02.83.

6. Petroleum Administration Act (title changed in 1982 to Energy Administration Act):

7. Energy Supplies Emergency Act, 1979:

- i) S.C. 1978-79, c. 17.
- ii) S.C. 1980-81-82-83, c. 112:
- ss. 2, 8, 9, 12, 16, 20.
- iii) S.C. 1986, c. 26:
- s. 23.

8. Canada Oil and Gas Act:

- i) 1980-81-82-83, c. 81.
- ii) S.C. 1984, c. 29.
 - ss. 2, 4.1 (added), 16, 54.
- iii) S.C. 1984, c. 40.
 - ss. 6, 7, 12, 41, 47, 49, 51, 56, 63.

9. National Energy Board Act:

- i) R.S.C., 1970, c. N-6.
- ii) S.C. 1980-81-82-83, c. 80:
 - ss. 29.1-29.6 (added), 31 (repealed), 37, 75, 75.1-75.29 (added).
- iii) S.C. 1980-81-82-83, c. 84:
 - ss. 4, 8.
- iv) S.C. 1980-81-82-83: c. 116:
 - ss. 2, 5, 13, 14, 14.1 (added), 16.1-16.2 (added), 22, 25, 27, 39, 40, 41, 42 (repealed), 43, 46, 49, 51, 52.1 & 52.2 (added), 59, 70, 73, 74, 77, 80.1 (repealed), 81-86, 86.1 (added), 87, 87.1-87.5 (added), 88-90, 90.1 (added).
- v) S.C. 1984, c. 40:
 - s. 3.
- vi) S.C. 1986, c. 27:
 - s. 67.

10. Canadian Home Insulation Program Act:

- i) S.C. 1980-81-82-83, c. 57.
- ii) S.C. 1985, c. 25:
 - s. 3.

11. Home Insulation (N.S. and P.E.I.) Program Act:

- i) No changes since (1980-81-82-83, c. 58).

12. Oil Substitution and Conservation Act:

- i) S.C. 1980-81-82-83, c. 59.
- ii) S.C. 1980-81-82-83, c. 112:
 - ss. 4, 5 (repealed), 8.
- iii) S.C. 1985, c. 25:
 - s. 3.

13. Department of Energy, Mines and Resources Act:

- i) R.S.C. 1970, c. E-6.
- ii) S.C. 1978-79, c. 13:
 - s. 4.
- iii) S.C. 1984, c. 31:
 - ss. 6-13 (repealed).

14. Petroleum Incentives Program Act:

- i) S.C. 1980-81-82-83, c. 107.
- ii) S.C. 1984, c. 40:
 - s. 30.
- iii) S.C. 1986, c. 14:
 - ss. 2-5, 7-9.

15. Canada Business Corporation Act:

- i) S.C. 1980-81-82-83, c. 42:
- ss. 182, 225.
- ii) S.C. 1980-81-82-83, c. 43:
- s. 261.
- iii) S.C. 1984, c. 40:
- ss. 39, 115, 140, 167.
- iv) S.C. 1985, c. 19:
- s. 226.

16. Energy Monitoring Act:

- i) No changes since (1980-81-82-83, c. 112).

17. Motor Vehicle Fuel Consumption Standards:

- i) No changes since (1980-81-82-83, c. 113).

18. Cooperative Energy Act:

- i) No changes since (1980-81-82-83, c. 108).

19. Canada-Nova Scotia Oil and Gas Agreement:

- i) No changes since (S.C. 1984, c. 29).

